A. 7. 65

Fr. Wrangham 1814.

ΣΤΙΓΜΑΙ

Αγεωμετρίας, Αγροικίας, Αντιπολιτείας, Αμαθείας

OR

MARKES

Of the { Abſurd Geometry / Rural Language / Scottiſh Church-Politicks / And Barbariſmes }

OF

JOHN WALLIS Profeſſor of Geometry and Doctor of Divinity.

By THOMAS HOBBES of MALMESBURY.

LONDON,

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To the Right honourable *Henry* Lord *Pierrepont* Vicount *Newarke*, Earle of *Kingſton*, and Marquis of *Dorcheſter*.

My moſt Noble Lord,

I *Did not intend to trouble your Lordſhip twice with this Contention between me and Doctor* Wallis. *But your* Lordſhip *ſees how I am conſtrained to it; which (whatſoever reply the Doctor makes) I ſhall be conſtrained to no more. That which* I *have now ſaid of his Geometry, Manners, Divinity, and Grammar all together is not much, though enough. As for that which I here have written concerning his Geometry, which you will look for firſt, is ſo clear, that not only your Lordſhip and ſuch as have proceeded far in that Sicence, but alſo any man elſe that doth but know how to adde and ſubſtract Proportions (which is taught at the twentieth third Propoſition of the ſixth of Euclide) may ſee the Doctor is in the wrong. That which I ſay of his ill Language and Politicks is yet ſhorter. The reſt (which concerneth Grammar) is almoſt all another mans, but ſo full of Learning of that kinde, as no man that taketh delight in knowing the proprieties of the Greek and Latine Tongues, will think his time ill beſtowed in the reading*

it. I give the Doctor no more ill words; but am returned from his manners to my own. Your Lordſhip may perhaps ſay my Complement in my Tittle page is ſomewhat courſe; And 'tis true. But, my Lord, it is ſince the writing of the Title page, that I am returned from the Doctors manners to my own; which are ſuch as I hope you will not be aſhamed to own me, my Lord, for one of

Your Lordſhips moſt humble

and obedient Servants

Thomas Hobbes.

o

TO

TO

DOCTOR WALLIS

In answer to his

SCHOOLE DISCIPLINE.

SIR,

WHen unprovok'd you addressed unto me in your *Elenchus* your harsh complement with great security, wantonly to shew your wit, I confesse you made me angry, and willing to put you into a better way of considering your own forces, and to move you a little as you had moved me; which I perceive my Lessons to you have in some measure done; But here you shall see how easily I can bear your reproaches, now they proceed from anger, and how calmly I can argue with you about your Geometry, and other parts of Learning.

I shall in the first part confer with you about your *Arithmetica Infinitorum*, and afterwards compare our manner of Elocution; then your Politicks; and last of all your Grammar and Criticks. Your spirall line is condemned by him whose Authority you use to prove me a Plagiary, (that is, a man that stealeth other mens inventions, and arrogates them to himself) whether it be *Roberval* or not that writ that paper, I am not certain. But I think I shall be shortly, but whosoever it be, his authority will serve no lesse to shew that your Doctrine of the spirall line from the fifth to the eighteenth proposition of your *Arithmetica Infinitorum*, is all false; and that the principal fault therein (if all faults be not principal in Geometry, when they proceed from ignorance of the Science) is the same that I objected to you in my Lessons. And for the Author of that paper, when I am certain who it is, it will be then time enough to vindicate my self concerning that name of Plagiary; And whereas he challenges the invention of your Method delivered in your *Arithmetica Infinitorum* to have been his before it was yours, I shall (I think) by and by say that which shall make him a shamed to own it; and those that writ those Encomiastick Epistles to you ashamed of the Honour they meant to you: I passe therefore to the ninteenth proposition, which in Latine is this.

Your *Geometry*.

Si proponatur series Quantitatum in duplicata ratione Arithmetice, proportionalium (sive juxta seriem numerorum Quadraticorum) continuè crescentium, à puncto vel o inchoatarum, (puta ut 0. 1. 4. 9. 16. &c.) propositum sit, inquirere quam habeat illa rationem ad seriem totidem maximæ æqualium.

Fiat Investigatio per modum inductionis ut (in prop. 1.)

$$\text{Eritque}\begin{cases} \dfrac{0+1=1}{1+1=2}=\dfrac{1}{3}+\dfrac{1}{6} \\[2ex] \dfrac{0+1+4=5}{4+4+4=12}=\dfrac{1}{3}+\dfrac{1}{12} \\[2ex] \dfrac{0+1+4+9=14}{9+9+9+9=36}=\dfrac{1}{3}+\dfrac{1}{18} \text{ \& sic deinceps.} \end{cases}$$

Ratio proveniens est ubique major quam subtripla seu $\frac{1}{3}$; *Excessus autem perpetuo decrescit prout numerus terminorum augetur (puta* $\frac{1}{6}\ \frac{1}{12}\ \frac{1}{18}\ \frac{1}{30}$ *&c.) aucto nimirum fractionis denominatore sive consequente rationis in singulis locis numero senario (ut patet) ut sit rationis provenientis excessus supra subtriplam; Ea quam habet unitas ad sextuplum numeri terminorum post o; adeoq;.*

That is, if there be propounded a row of quantities in duplicate proportion of the quantities Arithmetically proportional (or proceeding in the order of the square numbers) continually increasing; and beginning at a point or o; let it be propounded to finde what proportion the row hath; to as many quantities equal to the greatest;

Let it be sought by induction (as in the first proposition)

The proportion arising is every where greater then subtriple, or $\frac{1}{3}$. And the excesse perpetually decreaseth as the number of termes is augmented, as here, $\frac{1}{6}\ \frac{1}{12}\ \frac{1}{18}\ \frac{1}{24}\ \frac{1}{30}$ &c. the denominator of the fraction being in every place augmented by the number six (as is manifest) so that the excesse of the rising proportion above subtriple is the same which unity hath to six times the number of termes after o; and so.

Sir, In these your Characters I understand by the crosse + that the quantities on each side of it are to be added together and make one Aggregate; and I understand by the two parallel lines = that the quantities betwen which they are placed are one to another equall; This is your meaning, or you should have told us what you meant else: I understand also, that in the first row 0 + 1 is equal to 1, and 1 + 1 equal to 2; And that in the second row 0 + 1 + 4 is equal to 5; and 4 + 4 + 4 equal to 12; But (which you are too apt to grant) I understand your Symboles no further; but must confer with your self about the rest.

And first I ask you (because fractions are commonly written in that manner) whether in the uppermost row (which is $\frac{0+=1}{1+=2}=\frac{1}{3}+\frac{1}{6}$) $\frac{0}{1}$ be a fraction, $\frac{1}{1}$ be a fraction

ction, $\frac{1}{2}$ be a fraction, that is to say, a part of an unite, and if you will (for the cyphers sake) whether $\frac{0}{1}$, be an infinitely little part of 1; and whether $\frac{1}{1}$, or 1 divided by 1 signifie an unity; if that be your meaning, then the fraction $\frac{0}{1}$ added to the fraction $\frac{1}{1}$ is equal to the fraction $\frac{1}{2}$ 1 But the fraction $\frac{0}{1}$ is equal to 0; therefore the fraction $\frac{0}{1}+\frac{1}{1}$ is equal to the fraction $\frac{1}{1}$; and $\frac{1}{1}$ equal to $\frac{1}{2}$ which you will, confesse to be an absurd conclusion, and cannot own that meaning.

I ask you therefore again if by $\frac{0}{1}$ you mean the proportion of 0 to 1; and consequently by $\frac{1}{1}$ the proportion of 1 to 1, and by $\frac{1}{2}$ the proportion of 1 to 2: if so, then it will follow, that if the proportions of 0 to 1 and of 1 to 1 be compounded by addition, the proportion arising will be the proportion of 1 to 2. But the proportion of 0 to 1 is infinitely little, that is, none. Therefore the proportion arising by composition will be that of 1, to 1, and equall (because of the symbol $=$) to the proportion of 1 to 2 and so $1 = 2$: This also is so absurd that *I* dare say that you will not own it.

There may be another meaning yet: perhaps you mean that the uppermost quantitie $0 + 1$ is equal to the uppermost quantity 1; and the lowermost quantity $1 + 1$ equal to the lowermost quantity 2: Which is true: but how then in this equation $\frac{1}{2} = \frac{1}{3}+\frac{1}{6}$ is the uppermost quantity 1 equal to the uppermost quantity $1 + 1$; or the lowermost quantity 2 equal to the lowermost quantity $3 + 6$? Therefore neither can this be your meaning; unlesse you make your symbols more significant, you must not blame me for want of understanding them.

Let us now try what better successe we shall have where the places are three, as here $\frac{0+1+4=5}{4+4+4=12} \quad \frac{5}{12}=\frac{1}{3}+\frac{1}{12}$; If your Symbols be fractions, the compound of them by addition is $\frac{5}{4}$; For 0, $\frac{1}{4}$ and $\frac{4}{4}$ make $\frac{5}{4}$; and consequently (because of the Symbole $=$) $\frac{5}{4}$ equal to $\frac{5}{12}$ which is not to be allowed, and therefore that was not your meaning. If you meant that the proportions of 0 to 4 & of 1 to 4 & of 4 to 4 compounded is equal to the proportion of 5. to 12. you will fall again into no less an inconvenience. For the proportion arising out of that Composition will be the proportion of 1. to 4. For the proportion of 0. to 4. is infinitely little. Then to compound the other two, set them in this order 1. 4. 4. and you have a proportion compounded of 1. to 4. and of 4. to 4. namely, the proportion of the first to the last, which is of 1. to 4. which must be equal (by this your meaning) to the proportion of 5. to 12. and consequently as 5. to 12. so is 1. to 4. which you must not own. Lastly, if you mean that the uppermost quantities to the uppermost, and the lowermost to the lowermost in the first Equation are equal, tis granted, but then again in the second Equation it is false. It concerns your fame in the Mathematicks to look about how to justifie these Equations which are the premises to your conclusion following, namely, that the proportion arising is every where greater then subtriple, or a third; and that the excess (that is, the excess above subtriple) perpetually decreaseth as the number of terms is augmented, as here

$\frac{1}{6}\ \frac{1}{12}\ \frac{1}{18}\ \frac{1}{24}\ \frac{1}{30}$ &c. which I will shew you plainly is false.

But first I wonder why you were so angry with me for saying you made proportion to consist in the Quotient, as to tell me it was abominably false, and to justifie it, cite your own words *Penes Quotientem*, do not you say here, the proportion is every where greater then subtriple, or $\frac{1}{3}$? And is not $\frac{1}{3}$ the quotient of 1. divided by 3? You cannot say in this place that *Penes* is understood; for if it were expressed you would not be able to proceed.

But I return to your conclusion, that the excess of the proportion of the increasing quantities above the third part of so many times the greatest, decreaseth as $\frac{1}{6}\ \frac{1}{12}\ \frac{1}{18}\ \frac{1}{24}\ \frac{1}{30}$ &c. For by this accompt in this row $\frac{0+1}{1+1} = \frac{1}{2}$ where the quantitie above exceeds the third part of the quantities below by $\frac{1}{3}$, you make $\frac{1}{3}$ equal to $\frac{1}{6}$, which you do not mean. It may be said your meaning is that the proportion of 1. to the subtriple of 2. which is $\frac{2}{3}$ exceedeth what? I cannot imagine what, nor proceed further where the terms be but two. Let us therefore take the second row, that is, $\frac{0+1+4=5}{4+4+4=12}$ The summe above is 5. the summe below is 12. the third part whereof is 4. if you mean, that the proportion of 5. to 4. exceeds the proportion of 4. to 12. (which is subtriple) by $\frac{1}{12}$, you are out again. For 5. exceeds 4. by unitie, which is $\frac{12}{12}$ I do not think you will own such an equation as $\frac{12}{11} = \frac{1}{12}$. Therefore I believe you mean (and your next proposition assures me of it) that the proportion of 5. to 4. exceeds subtriple proportion by the proportion of 1. to 12. if you do so, you are yet deceived.

For if the proportion of 5. to 4. exceeds subtriple proportion by the proportion of 1. to 12. then subtriple proportion, that is, of 4. to 12. added to the proportion of 1. to 12. must make the proportion of 5. to 4. But if you look on these quantities 4.12. 144. you will see and must not dissemble that the proportion of 4. to 12. is subtriple, and the proportion of 12. to 144. is the same with that of 1. to 12. Therefore by your assertion it must be as 5. to 4. so 4. to 144. which you must not own.

And yet this is manifestly your meaning as appeareth in these words; *ut sit rationis provenientis excessus supra subtriplam ea quam habet unitas ad sextuplum numeri terminorum post 0, adeoque*, which cannot be rendered in English, nor need to be. For you express your self in the 20th. proposition very clearly; I noted it only that you may be more merciful hereafter to the stumblings of a hasty Pen. For *excessus ea quam* does not well, nor is to be well excused by *subauditur ratio*. Your 20th. proposition is this.

Si proponatur series quantitatum in duplicata ratione Arithmeticè proportionalium (sive juxta seriem Numerorum Quadraticorum) continuè crescentium, a puncto vel 0 in choatarum, ratio quam habet illa ad seriem totidem maxima aqualium subtriplam superabit; eritque excessus ea ratio quam habet unitas ad sextuplum numeri terminorum post 0, sive quam habet radix Quadratica termini primi post 0 ad sextuplum radicis Quadratica termini maximi.

That is, if there be propounded a row of quantities in duplicate proportion of Arithmetically-proportionals (or according to the row of square numbers) continually increasing, and beginnin gwith a point or 0. The proportion of that row to a row of so many

many equals to the greateſt, ſhall be greater then ſubtriple proportion, and the exceſſe ſhall be that proportion which unity hath to the ſextuple of the number of termes after 0, or the ſame which the ſquare root of the firſt number after 0, hath to the ſextuple of the ſquare root of the greateſt.

For proof whereof you have no more here, then *patet ex præcedentibus*; and no more before but *adeoq;*. You do not well to paſſe over ſuch curious propoſitions ſo ſlightly; none of the Antients did ſo; nor, that I remember, any man before your ſelf. The propoſition is falſe, as you ſhall preſently ſee.

Take for example any one of your rows; as $\frac{0+1+4}{4+4+4}$. By this proportion of yours $1+4$ which makes 5 is to 12 in more then ſubtriple proportion; by the proportion of 1 to the ſextuple of 2 which is 12. Put in order theſe three quantities 5. 4. 12. And you muſt ſee that the proportion of 5 to 12 is greater then the proportion of 4 to 12, that is, ſubtriple proportion, by the proprtion of 5 to 4. But by your account the ptoportion of 5 to 4 is greater then that of 4 to 12 by the ptoportion of 1 to 12. Therefore as 5 to 4 ſo is 1 to 12. which is a very ſtrang Parodox.

After this you bring in this Conſectary.

Cum autem creſente numero terminorum exceſſus ille ſupra rationem ſubtriplam conninuò minuatur, ut tandem quovis aſſignabili minor evadat (un patet) ſi in infinitum producatur prorſus evaniturus eſt. Adeoque.

That is, ſeeing as the number of tearms encreaſeth, that exceſſe above ſubtriple proportion continually decreaſeth, ſo as at length it becomes leſſe then any aſſignable (as is manifeſt) if it be produced infinitely, it ſhall utterly vaniſh, and ſo. And ſo what?

Sir, This conſequence of yours is falſe. For two quantities being given, and the exceſſe of the greater above the leſſe, that exceſſe may continually be decreaſed, and yet never quite vaniſh. Suppoſe any two unequal quantities differing by more then an unite, as 3 and 6, the exceſſe 3, let three be diminiſhed, firſt by an unite, and the exceſſe will be 2 and the quantities will be 3 and 5. 5 is greater then 4; the exceſſe 1. Again, let 1 be diminiſhed and made $\frac{1}{2}$. the exceſſe $\frac{1}{2}$ and the quantities 3 and $4\frac{1}{2}$. $4\frac{1}{2}$ is yet greater then 4. Again diminiſh the exceſſe to $\frac{1}{4}$, the quantities will be 3 and $4\frac{1}{4}$ yet ſtill $4\frac{1}{4}$ is greater then 4. In the ſame manner you may proceed to $\frac{1}{8}$, $\frac{1}{16}$, $\frac{1}{32}$, &c. Infinitely; and yet you ſhall never come within an unite (though your unite ſtand for 100 mile) of the leſſer quantity propounded 3, if that 3 ſtand for 300 Mile. The exceſſes above ſubtriple proportion do not decreaſe in the manner you ſay it does, but in the manner which I ſhall now ſhew you.

In this firſt row $\frac{0+1}{1+1}$ a third of the quantities below is $\frac{2}{3}$. ſet in order theſe three quantities $1.\frac{2}{9}.\frac{2}{3}$. The firſt is 1 equal to the ſum above, the laſt is $\frac{2}{3}$ equal to the ſubtriple of the ſum below. The middlemoſt is $\frac{2}{9}$ ſubtriple to the laſt quantity $\frac{2}{3}$

The

The exceſſe of the proportion of 1 to $\frac{2}{3}$ above the ſubtriple proportion of $\frac{2}{9}$ to $\frac{2}{3}$ is the proportion of 1 to $\frac{2}{9}$, that is, of 9 to 2, that is of 18 to 4.

Secondly in the ſecond row which is $\frac{0+1+4}{4+4+4}$ a third of the ſum below is 4 the ſum above is 5. Set in order theſe quantities 1 5. 4. 12. There the proportion of 15 to 12 is the proportion of 5 to 4. The proportion of 4 to 12 is ſubtriple; the exceſſe is the proportion of 15 to 4, which is leſſe then the proportion of 18 to 4. as it ought to be; but not leſſe by the proportion of $\frac{1}{6}$ to $\frac{1}{12}$, as you would have it.

Thirdly, in the third row, which is $\frac{0+1+4+9}{9+9+9+9}$. A third of the ſum below is 12, the ſum above is 14. Set in order theſe quantities 4 2. 4. 12. There the proportion of 42 to 12. is the ſame, with that of 14 to 4. And the proportion of 4 to 12 ſubtriple, leſſe then the former exceſſe of 15 to 4. And ſo it goes on deceaſing all the way in this manner, 18 to 4. 15 to 4. 14 to 4 &c. which differs very much from your 1 to 6. 1 to 12. 1 to 18 &c. and the cauſe of your miſtake is this; you call the twelfth part of twelve $\frac{1}{12}$, and the eighteenth part of thirty ſix, you call $\frac{1}{18}$, and ſo of the reſt. But what need all thoſe equations in Symbols, to ſhew that the proportion decreaſes; is there any man can doubt, but that the proportion of 1 to 2 is greater then that of 5 to 12, or that of 5 to 12 greater then that of 14 to 36, and ſo continually forwards; or could you have fallen into this errour, unleſſe you had taken, as you have done in very many places of your *Elenchus*, the Fractions $\frac{1}{6}$ and $\frac{1}{12}$, &c. which are the quotients of 1 divided by 6 and 12. for the very proportions of 1 to 6, and 1 to 12. But notwithſtanding the exceſſe of the proportions of the encreaſing quanti ies, to ſubtriple proportion decreaſe ſtil, as the number of tearms increaſeth, and that what proportions ſoever I ſhall aſſigne, the decrement will in time (in time I ſay without proceeding *in infinitum*) produce a leſſe, yet it does not follow that the row of the increaſing quantities ſhall ever be equall to the third part of the row of ſo many equalls to the laſt or greateſt. For it is not, I hope, a Paradox to you, that in two rows of quantities the proportion of the exceſſes may decreaſe, and yet the exceſſes them ſelves encreaſe, and do perpetually.

For in the ſecond and third rows, which are $\frac{0+1+4=5.}{4+4+4=12}$ and $\frac{0+1+4+9=14}{9+9+9+9=36}$ 5 exceeds the third part of 12, by a quarter of the ſquare of four, and 14 exceedes the third part of 36 by 2 quarters of the ſquare of 4, and proceeding on, the ſum of the increaſing quantities where the termes are 5 (which ſum is 30) exceedeth the third part of thoſe below (thoſe below are 80 and their third part $26\frac{2}{3}$ by 3 quarters and $\frac{1}{2}$ a quarter of the ſquare of 4. and when the tearms are 6 the quantities above will exceed the third part of them below by 5 quarters of the ſquare of four. Would you have men beleeve, that the forther you go, the exceſſe of the increaſing quantities above the third part of thoſe below ſhall be ſo much the leſſe? And yet the proportions of thoſe above, to the the thirds of thoſe below, ſhall decreaſe eternally; and therefore your 2d propoſition is falſe, namely this.

Si

Si proponatur ſeries Infinita quantitatum in duplicata ratione Arithmeticè proportionalium (ſive juxta ſeriem numerorum quadraticorum) continuè creſcentium à puncto ſive O inchoatarum; erit illa ad ſeriem totidem maximè æqualium, ut 1 ad 3.

That is, if an infinite row of quantities be propounded in duplicate proportion of Arithmetically-proportionalls (or according to the row of quadratick numbers) continually increaſing and beginning from a point or 0; that row ſhall be to the row of as many equalls to the greateſt, as 1 to 3. This is falſe, *ut patet ex præcedentibus*, and conſequently all that you ſay in proof of the proportion of your *Parabola* to a *parallelogram*, or of the *ſpiral* (the true *ſpiral*) to a *circle* is in vain.

But your ſpiral puts me in mind of what you have underwritten to the diagramme of your prop 5. *The ſpirall in both figures was to be continued whole to the middle, but by the careleſneſſe of the Graver it is in one figure* manca, *in the other* interciſa.

Truly Sir, you will hardly make your Reader beleeve that a Graver could commit thoſe faults without the help of your own Coppy, nor that it had been in your coppy, if you had known how to deſcribe a ſpiral line then as now. This I had not ſaid, though truth, but that you are pleaſed to ſay, though not truth, that I attributed to the Printer ſome faults of mine;

I come now to the thirty ninth propoſition which is this

Si proponatur ſeries quantitatum in triplicata ratione Arithmeticè proportionalium (ſive juxta ſeriem numerorum cubicorum) continuè creſentium a puncto ſive O inchoatarum, (puta ut O. 1. 8. 27. &c.) propoſitum ſit inquirere quam habeat ſeries illa rationem ad ſeriem totidem maximè æqualium.

Fiat inveſtigatio per modum Inductionis (ut in prop. 1 & prop 19.)

Eritque

$$\left\{\begin{array}{l} \frac{0+1=1}{1+1=2}=\frac{2}{4}=\frac{1}{4}+\frac{1}{4} \\ \frac{0+1+8=9}{8+8+8=24}=\frac{3}{8}=\frac{1}{4}+\frac{1}{8} \\ \frac{0+1+8+27=36}{27+27+27+27=108}=\frac{4}{12}=\frac{1}{4}+\frac{1}{12} \end{array}\right.$$

Et ſic deinceps

Ratio proveniens eſt ubique major quam ſubquadrupla, ſive $\frac{1}{4}$. *Exceſſus autem perpetuo decreſcit, prout numerus terminorum augetur, puta* $\frac{1}{4}\cdot\frac{1}{8}\cdot\frac{1}{12}\cdot\frac{1}{16}$ *&c. Auctò nimirum fractionis denominatore ſive conſequente rationis in ſingulis locis numero quaternatio (ut patet) ut ſit rationis provenientis exceſſus ſupra ſubquadruplam ea quam habet unitas ad Quadruplum numeri terminorum poſt 0. Adeoq;.*

That

That is, if a row of quantities be propounded in triplicate proportion of Arithmetically proportionalls (or according the row of cubiqūe numbers) continually encreasing, and begin ning from a point or 0 (as 0.1.8. 27. 64. &c.) let it be propounded to enquire what proportion that row hath to a row of as many equalls to the greatest)

Be it sought by way of induction, (as in prop. 1.19).

The proportion arising is every where greater then subquadruple, or $\frac{1}{4}$, and the exceſſe perpetually decreaſeth as the number of tearms increaſeth as $\frac{1}{4}\cdot\frac{1}{8}\cdot\frac{1}{12}\cdot\frac{1}{16}\cdot\frac{1}{20}$ &c. The denominator of the fraction, or conſequent of the proportion being in every place augmented by the number 4 (as is manifeſt) ſo that the exceſſe of the ariſing proportion above ſubquadruple is the ſame with that which an unite hath to the quadruple of the number of the tearms after 0. And ſo. Here are juſt the ſame faults which are in prop. 19.

For if $\frac{0}{1}$ be a fraction, and $\frac{1}{1}$ be a fraction and $\frac{1}{2}$ be another fraction, then this equation $\frac{0+1=1}{1+1=2}$ is falſe. For this fraction $\frac{0}{1}$ is equal to 0; and therefore we have $\frac{1}{1}=\frac{1}{2}$, that is the whole equal to half. But perhaps you do not mean them fractions, but proportions; and conſequently that the proportion of 0 to 1, and of 1 to 1 compounded by addition (I ſay by addition; not that I, but that you think there is a compoſition of proportions by multiplication, which I ſhall ſhew you anon is falſe) muſt be equal to the proportion of 1 to 2. which cannot be. For the preportion of 0 to 1 is infinitely little, that is, none at all; and conſequently the proportion of 1 to 1 is equall to the proportion of 1 to 2. which is again abſurd. There is no doubt, but the whole number of $0+1$ is equal to 1, and the whole number $1+1$ equal to 2. But reckoning them as you do, not for whole numbers, but for fractions, or proportions, the equations are falſe.

Again your ſecond equation $\frac{2}{4}=\frac{1}{4}+\frac{1}{4}$ though meant of fractions, that is of quotients is be true, and ſerve nothing to your purpoſe, yet if it be meant of proportions, it is falſe. For the proportion of 1 to 4 and of 1 to 4 being compounded are equal to the proportion of 1 to 16, and ſo you make the proportion of 2 to 4 equal to the proportion of 1 to 16, where as it is but ſubquadruplicate, as you call it, or the quarter of it as I call it. And in the ſame manner you may demonſtrate to your ſelf, the ſame fault in all the other rows of how many tearms ſoever they conſiſt. Therefore you may give for loſt this 39. prop. as well as all the other 38 that went before. As for the concluſion of it, which is, *that the exceſſe of the ariſing proportion &c.* They are the words of your 40. propoſition, where you expreſſe your ſelf better, and make your errour more eaſie to be detected.

The propoſition is this.

Si proponatur ſeries quantitatum in triplicata ratione Arithmeticè proportionalium (ſive juxta ſeriem numerorum cubicorum) continue creſcentium à puncto vel o inchoatarum, ratio quam habet illa ad ſeriem totidem maximæ æqualium ſubquadruplam ſuperabit; eritque exceſſus ea ratio quam habet unitas ad quadruplum numeri terminorum poſt 0; ſive quam habet radix cubica termini primi poſt 0 ad quadruplum radicis cubicæ termini maximi. Patet ex præcedente.

Quum autem creſcente numero terminorum exceſſus ille ſupra rationem ſubquadruplam ita continue

tinuo minuatur, ut tandem quolibet assignabili minor evadat, (ut patet) si in Infinitum proeedatur, prorsus evaniturus est. Adeoque.

Patet ex prop. præcedent.

That is; If a row of quantities be propounded in triplicate proportion of Arithmetically proportionalls (or according to the row of cubick numbers) continually encreasing; and beginning at a point or o; The proportion which that row hath to a row of as many equals to the greateſt is greater then ſubquadruple proportion; and the exceſſe is that proportion which one unite hath to the Quadruple of the number of termes after o. Or which the cubick root of the firſt term after o hath to the quadruple of the root of the greateſt tearm.

It is manifeſt by the precedent propoſitions.

And ſeeing, the number of tearmes increaſing, that exceſſe above quadruple proportion doth ſo continually decreaſe, as that at length it becomes leſſe then any proportion that can be aſſigned (as is manifeſt) if the proceeding be infinite, it ſhall quite vaniſh; And ſo.

This concluſion was annexed to the end of your 39 propoſition; as there prooved. What cauſe you had to make a new propoſition of it, without other proof then *patet ex præcedente*, I cannot imagine. But howſoever the propoſition is falſe.

For example, ſet forth any of your rowes, as this of fower termes.

$$\begin{array}{r} 0+1+8+27=36 \\ \hline 27+27+27+27=108 \end{array}$$

The row above is 36. the fourth part of the row below is 27. The quadruple of the number of termes after o is 12. then by your accompt, the proportion of 36 to 108 is greater then ſubquadruple proportion by the proportion of 1 to 12. For trial whereof ſet in order theſe three quantities 36.27.108. The proportion of 36 (the uppermoſt row) to 108 (the lowermoſt row) is compounded by addition of the proportions 36 to 27, and 27 to 108. And the proportion of 36 to 108 exceedeth the proportion of 27 to 108 by the proportion of 36 to 27. But the proportion of 27 to 108 is ſubquadruple proportion. Therefore the proportion of 36 to 108 exceedeth ſubquadruple proportion, by the proportion of 36 to 27. And by your account by the proportion of 1 to 12; and conſequently as 36 to 27 ſo is 1 to 12. Did you think ſuch demonſtrations as theſe, ſhould alwayes paſſe?

Then for your inference from the decreaſe of the proportions of the exceſſe to the vaniſhing of the exceſſe it ſelf, I have already ſhewed it to be falſe; and by conſequence that your next Propoſition, namely, the 40 is alſo falſe.

The propoſition is this.

Si proponatur ſeries infinita quantitatum in triplicata ratione Arithmeticè proportionalium (ſive juxta ſeriem numerorum cubicorum) continuè creſcentium à puncto ſive o inchoatarum, erit illa ad ſeriem totidem maximæ æqualium, ut 1 ad 4. patet ex præcedente.

That is, If there be propounded an infinite row of quantities in triplicate proportion of Arithmetically proportionalls (or according to the row of cubick numbers) continually increasing, and beginning at a point or 0; it shall be to the row of as many equalls to the greatest as 1 to 4. Manifest out of the precedent proposition.

Even as manifest as that 36.27. 1. 12. Are proportionalls: seeing therefore your Doctrine of the spiral lines and spaces is given by your self for lost, and a vaine attempt, your first 41 propositions are undemonstrated, and the grounds of your demonstrations all false. The cause whereof is partly your taking quotient for proportion, and a point for 0, as you do in the 1. 16 and 40. propositions and in other places where you say *beginning at a point or* 0; though now you denie you ever said either. There be very many places in your *Elenchus*, where you say both; and have no excuse for it, but that in one of the places, you say the proportion is *penes quotientem*, which is to the same or no sense.

Your 42 proportion is grounded on the 40; and therefore though true, and demonstrated by others, is not demonstrated by you.

Your 43 is this.

Pari methodo invenietur ratio seriei infinitæ quantitatum Arithmeticè proportionalium in ratione quadruplicata, quintuplicata, sextuplicata, etc Arithmeticè proportionalium à puncto seu 0 inchoatarum, ad seriem totidem maximæ æqualium. Nempe in quadruplicata erit, ut 1 ad 5; in quintuplicata ut 1 ad 6; in sextuplicata ut 1 ad 7.

Et sic deinceps.

That is, By the same method will be found the proportion of an infinite row of Arithmetically proportionalls in proportion quadruplicate, quintuplicate, sextuplicate &c. of Arithmetically proportionalls beginning at a point or 0, to the row of as many equalls to the greatest; Namely, in quadruplicate, it shall be as 1 to 5, in quintuplicate as 1 to 6; in sextuplicate as 1 to 7; and so forth.

But by the same method that I have demonstrated that the 19. 20. 21. 39. 40. 41. Propositions are false, any man else that will examine the 43 may finde it false also. And because all the rest of the propositions of your *Arithmetica infinitorum* depend on these, they may safely conclude that there is nothing demonstrated in all that Book, though it consist of 194 propositions. The proportions of your Paraboloeides to their Parallellogrammes are true, but the demonstrations false, and infer the contrary. Nor were they ever demonstrated (at least the demonstrations are not extant) but by me; nor can they be demonstrated, but upon the same grounds concerning the nature of proportion, which I have clearly laid, and you not understood. For if you had, you could never have fallen into so grosse an errour as is this your Book of *Arithmetica Infinitorum*, or that of the Angle of Contact. You may see by this that your symbolick Method is not onely, not at all inventive of new Theormes, but also dangerous in expressing the old. If the best Masters of Symbolicks think for all this you are in the right, let them declare it. I know how far the Analysis by the powers of the lines extendeth, as well as the best of your half-learn't Epistlers, that approve so easily of such Analogisms as those. 5. 4. 12, and 36. 27. 1. 12. &c.

It is well for you that they who have the disposing of the professors places take not upon them to be Judges of Geometry. For if they did, seeing you confesse you have

read

read theſe Doctrines in your Schools you had been in danger of being put out of your place.

When the Author of the paper wherein I am called Plagiary, and wherein the honor is taken from you of being the firſt inventor of theſe fine Theoremes, ſhall read this that I have here written, he will look to get no credit by it; eſpecially if it be *Roberval*, which me thinkes it ſhould not be. For he underſtands what proportion is, better then to make 5 to 4 the ſame with 1 to 12. Or to make again, the proportion of 36 to 27 the ſame with that of 1 to 12; and innumerable *diſproportionalites* that may be inferred from the grounds you go on. But if it be *Roberval* indeed, that ſnatches this invention from you, when he ſhall ſee this burning coal hanging at it, he will let it fall again, for fear of ſpoiling his reputation.

But what ſhall I anſwer to the Authority of the three great Mathemiticians that ſent you thoſe Encomiaſtick letters. For the firſt, whom you ſay I uſe to praiſe, I ſhall take better heed hereafter of praiſing any man for his Learning whilſt he is young, further then that he is in a good way. But it ſeemes he was in too ready a way of thinking very well of himſelf, as you do of your ſelf. For the muddineſſe of my brain, I muſt confeſſe it. But Sr, Ought not you to confeſſe the ſame of yours? No, men of your tenets uſe not to do ſo. He wonders, (ſay you) you thought it worth the while to fowl your fingers about ſuch a piece. Tis well; Every man abounds in his own ſenſe. If you and I were to be compared by the complements that are given us in p ivate letters, both you and your Complementors would be out of Countenance; which complements, beſides that which has been printed and publiſhed in the Commendations of my writings, if it were put together would make a greater volume then either of your Libels. And truely Sir, I had never anſwered your Elenchus as proceeding from Dr. *Wallis*; if I had not conſidered you alſo as the Miniſter to execute the malice of that ſort of people that are offended with my *Leviathan*.

As for the judgement of that Publick Profeſſor that makes himſelf a witneſſe of the goodneſſe of your Geometry, a man may eaſily ſee by the letter it ſelfe that he is a duns. And for the Engliſh perſon of quality whom I know not, I can ſay no more yet, then I can ſay of all three, that he is ſo ill a Geometrician, as not to detect thoſe groſſe Paralogiſmes as infer that 5 to 4 and 1 to 12 are the ſame proportion. He came into the cry of thoſe whom your title had deceived.

And now I ſhall let you ſee that the compoſition of proportion by multiplication as it is in the 5 def. of the 6 Element, is but another way of adding proportions one to another. Let the proportions be of 2 to 3, and of 4 to 5. Multiply 2 into 4 and 3 into 5 the proportion ariſing is of 8 to 15. Put in order theſe three quantities 8. 12. 15. The proportion therefore of 8 to 15 compounded of the proportions of 8 to 12 (that is, of 2 to 3) and of 12 to 15. that is, of 4 to 5 by addition. Again, let the proportion be of 2 to 3 and & 4 to 5 multiply 2 into 5 and 3 into 4 the proportion ariſing is of 10 to 12. Put in order theſe 3 numbers 10. 8. 12. The proportion 10 to 12 is compounded of the proportions of 10 to 8 that is of 5 to 4, and of 8 to 12, that is of 2 to 3 by addition, I wonder you know not this.

I finde not any more clamour againſt me for ſaying the proportion of 1 to 2 is double to that of 1 to 4.

Your Book you ſpeak of concerning proportion againſt *Maybonius* is like to be very uſeful when neither of you both do underſtand what proportion is.

You take exceptions at that I ſay, that *Eucilde* has but one word for *double* and *duplicate*; which nevertheleſſe was ſaid very truely, and that word is ſomtimes διπλάσιος and ſometimes διπλασίων. And you think you come of handſomly with asking me whether διπλάσιος and διπλασίων be one word.

Nor are you now of the minde you were, that a point is not *quantity unconsidered*; but that in an infinite ſeries it may be ſafely neglected. What is *neglected* but unconſidered?

Nor do you any more ſtand to it, that the *quotient* is the *proportion*. And yet were theſe the main grounds of your *Elenchus*.

But you will ſay perhaps I do not anſwer to the defence you have now made in this your *School Diſcipline*, Tis true. But 'tis not becauſe you anſwer never a word to my former objection againſt theſe prop. 19. 39. But becauſe you do ſo ſhift and wriggle and throw out ink, that I cannot perceive which way you go; nor need I, eſpecially in your vindication of your *Arithmetica Infinitorum*. Onely I muſt take notice that in the end of it, you have theſe words, *well, Arithmetica Infinitorum is come off clear*. You ſee the contrary. For ſprawling is no defence.

It is enough to me, that I have clearly demonſtrated both, before ſufficiently, and now again abundantly, that your Book of *Arithmetica Infinitorum* is all nought from the beginning to the end, and that thereby I have effected that your Authority ſhall never hereafter be taken for a prejudice. And therefore they that have a deſire to know the truth in the queſtions between us, will henceforth, if they be wiſe, examine my Geometry by attentive reading me in my own writings, and then examine, whether this writing of yours confute or enervate mine.

There is in my 5 leſſon a propoſition, with a diagramme to it to make good, (I dare ſay,) at leaſt againſt you, my 20. Chapter concerning the dimenſion of a Circle. If that demonſtration be not ſhewn to be falſe, your objections to that Chapter (though by me rejected) come to nothing. I wonder why you paſſe it over in ſilence. But you are not, you ſay, bound to anſwer it. True, nor yet to defend what your have written againſt me.

Before I give over the examination of your Geometry, I muſt tell you that your words (pag. 101 of this your *Schoole Diſcipline*) again the firſt Corollary are untrue.

Your words are theſe, *you affirm that the proportion of the parabola A B I to the parabola A F K is triplicate to the proportion of the time A B to A F, as it is in the Engliſh.* This is not ſo. Let the Reader turn to the place and judge. And going on you ſay, *or of the impetus B I to F K, as it is in the Latine.* Nay, as it is in the Engliſh, and the other in the Latine. Tis but your miſtake; but a miſtake is not eaſily excuſed in a falſe accuſation.

Your exception to my ſaying, *That the differences of two quantities is their proportion* (when they differ, as the no-difference, when they be equal) might have been put in amongſt other marks of your not ſufficiently underſtanding the Latine tongue. *Differre* and *Differentia* differ no more then *vivere* and *vita*, which is nothing at all, but as the other words require that go with them, which other words you do not much uſe to conſider. But *differre* and the *quantity by which they differ*, are quite of another kinde. *Differre* (τὸ διαφέρειν, τὸ ὑπερέχειν) *differing, exceeding*, is not quantity, but relation. But the quantity by which they differ is alwayes a certain and determined quantity, yet the word *differentia* ſerves for both, and is to be underſtood by the coherence with that which went before. But I had ſaid before, and expreſsly to prevent cavil, that relation is nothing but a compariſon, and that proportion is nothing but relation of quantities and ſo defined them, and therefore, I did there uſe the word *differentia* for *differing*, and not for the quantity which was left by ſubſtraction. For a quantity is not a *differing*. This I thought the intelligent Reader would of himſelf underſtand without putting me, inſtead of *differentia* to uſe (as ſome do, and I ſhall never do) the mongrell word τὸ *differre*. And whereas in one onely place for *differre ternario* I have writ *ternarius*, If you had underſtood what was clearly expreſt before, you might have been ſure, it was not my meaning

meaning, and therefore the excepting against it, was either want of understanding, or want of Candour; chuse which you will.

You do not yet clear your Doctrine of *Condensation* and *Rarefaction*. But I beleeve you will by degrees become satisfied that they who say the same Numerical Body may be sometimes greater, sometimes lesse, speak absurdly, and that *Condensation* and *Rarefaction* here, and *definitive* and *circumscriptive* and some other of your distinctions elsewhere are but snares, such as School-Divines have invented

—— ὥσπερ ἀράχνης,
Οὐλόμενος χέζει ἀλύσεις μυίαις ἀβαρέσσι)
to intangle shallow wits.

And that that distinction which you bring here, *that it is of the same quantity, while it is in the same place, but it may be of a different quantity, when it goes out of its place,* (as if the place added to, or took any quantity from the body placed) is nothing but meer words. Tis true that the Body which swells changeth place; but it is not by becoming it self a greater body, but by admixtion of Aire or other body; as when water riseth up in boyling, it taketh in some parts of Aire. But seeing the first place of the body is to the body equal, and the second place equal to the same body, the places must also be equal to one another, and consequently the dimensions of the body remain equal in both places.

Sir, When I said that such Doctrine was taught in the Universities, I did not speak against the Universities, but against such as you. I have done with your Geometry, which is one στιγμὴ.

As for your Elequence let the Reader judge, whether yours or mine be the more *muddy*, though I in plain scolding should have out done you, yet I have this excuse which you have not, that I did but answer your challenge at that weapon which you thought fit to choose. The Catalogue of the hard language which you put in at the 3. and 4. pages of your *School-discipline*, I acknowledge to be mine, and would have been content you had put in all. The titles you say I give you of *Fooles, Beasts, and Asses* I do not give you, but drive back upon you; which is no more then not to own them; For the rest of the Catalogue I like it so well as you could not have pleased me better, then by setting those passages together to make them more conspicuous, thats all the defence I will make to your accusations of that kinde.

And now I would have you to consider whether you will make the like defence against the faults that I shall finde in the Language of your *School-Discipline*.

I observe first the facetiousnesse of your Title-page. *Due Correction for Mr. Hobbs, or Schoole-Discipline, for not saying his lessons right*, what a quibble is this upon the word Lesson; Besides, you know it has taken winde; for you vented it amongst your acquaintance at *Oxford* then when my Lessons were but upon the Presse, Do you think if you had pretermitted that peece of wit, the opinion of your judgement would have been ere the lesse. But you were not content with this but must make this Metaphor from the rod, to take up a considerable part of your book; in which there is scarce any thing that your self can think wittily said besides it. Consider also these words of yours; *It is to be hoped that in time you may come to learn the Language, for you be come to great A already.* And presently after, *were I great A before I would be willing to be so used, I should wish my self little a, a hundred times.* Sir, you are a Doctor of Divinity, and a professor of Geometry, but do not deceive your self; this does not passe for witt in these parts; no

nor generally at *Oxford*. I have acquaintance there that will bluſh at the reading it.

Again, in another place you have theſe words, *Then you Catechize us, whats your name. Are you Geometricians? who gave you that name &c.* Beſides in other places ſuch abundance of the like inſipid conceipts as would make men think, if they were no otherwiſe acquainted with the Univerſity but by reading your Books, that the dearth there of ſalt were very great. If you have any paſſage more like to ſalt then theſe are (excepting *now and anon*) you may do wel to ſhew it your acquaintance, leſt they deſpiſe you; For (ſince the detection of your Geometry) you have nothing left you elſe to defend you from contempt. But I paſſe over this kinde of eloquence; and come to ſomewhat yet more rurall.

Page 27. line 1. You ſay I have given *Euclide* his *Lurry*. And again pag. 129. l. 11. And *And now he is left to learn his Lurry*. I underſtand not the word *Lurry*. I never read it before, nor heard it, as I remember, but once, and that was when a Clown threatning another Clown ſaid he would give him *ſuch a Lurry come poope &c.* Such words as theſe do not become a learned mouth, much leſſe are fit to be Regiſtred in the publick writings of a Doctor of Divinity. In another place you have theſe words, *juſt the ſame to a Cows thumb*, a pretty Adage.

Page 2. *But pree-thee tell me.* And again page 95. *pree-thee tell me, why doſt thou aſk me ſuch a queſtion*, and the like in many other places. You cannot but know how eaſy it is and was for me, to have ſpoken to you in the ſame language. Why did I not? Becauſe I thought that amongſt men that were civilly bred it would have redounded to my ſhame, as you have cauſe to fear that this will redound to yours. But what moved you to ſpeak in that manner? were you angry? If I thought that the cauſe, *I* could pardon it the ſooner, but it muſt be very great anger that can put a man that profeſſeth to teach good manners, ſo much out of his wits as to fall into ſuch a language as this of yours; It was perhaps an imagination that you were talking to your inferiour, which I will not grant you, nor will the Heralds I beleeve trouble themſelves to decide the queſtion. But howſoever I do not finde that civil men uſe to ſpeak ſo to their inferiours. If you grant my learning but to be equal to yours (which you may certainly do without very much diſparageing of your ſelf abroad in the world) you may think it leſſe inſolence in me to ſpeak ſo to you in reſpect of my age, then for you to ſpeak ſo to me in reſpect of your young Doctor-ſhip. You will finde that for all your Doctor-ſhip, your elders, if otherwiſe of as good repute as you, will be reſpected before you. But I am not ſure that this language of yours proceeded from that cauſe; I am rather inclined to think you have not been enough in good company, and that there is ſtill ſomewhat left in your manners for which the honeſt youths of *Hedington* and *Hincſey* may compare with you for good Language as great a Doctor as you are.

For my verſes of the Peak, though they be as ill in my opinion as I beleeve they are in yours, and made long ſince, yet are they not ſo obſcene, as that they ought to be blamed by Dr. *Wallis*. I pray you Sir, whereas you have theſe words in your *Schoole-Diſcipline* page 96. *unleſſe you will ſay that one and the ſame motion may be now, and anon too*; what was the reaſon you put theſe words *now and anon too* in a different Character, that makes them to be the more taken notice of; Do you think that the ſtory of the Miniſter that uttered his affection (if it be not a ſlander) not unlawfully but unſeaſonably, is not known to others as well as to you? what needed you then (when there was nothing that I had ſaid could give the occaſion) to uſe thoſe words; there is nothing in my verſes that do *oleye hircum*, ſo much as this of yours, I know what good you can receive by ruminating on ſuch Ideas, or cheriſhing of ſuch thoughts. But I go on to other words of mine by you reproached, *you may as wel ſeek the Focus of the Parabola of Dives and Lazarus*, which

which you ſay is mocking of the Scripture. To which I anſwer onely, that I intended not to mock the Scripture, but you; and that which was not meant for mocking was none. And thus you have a ſecond σιγμὴ.

Grammar and *Critickes.*

I come now to the compariſon of our Grammar and Criticks. You object firſt againſt the ſignification I give of σιγμὴ, & ſay thus, *what ſhould come into your cap* (that if you markit in a man that wears a ſquare cap, to one that wears a Hatt is very witty) *To make you think that σιγμὴ ſignifies a mark or brand with a hot iron, I perceive where the buſineſſe lies. Twas σίγμα then in your minde when you talked of σιγμὴ; and becauſe the words are ſomewhat alike you jumble them both together.* Sir, I tould you once before, you preſume too much upon your firſt cogitations. Ariſtophanes, in Ranis. Act. 5. Scen. 5. Κἂν μὴ ταχέως Ἥκωσι Νὴ τὸν Ἀπόλλω σίξας αὐτοὺς &c. The old Commentator upon the word σίξας ſaith thus σίξας ἀντὶ τοῦ σιγματίας, ἵν' ᾖ ξένος. That is, σίξας for σιγματίσας for he (Adimantus) was not a Citizen. I hope the Commentator does not here mock *Ariſtophanes* for jumbling σίξας and σιγματίσας together for want of underſtanding Greek. No, σίξας and σιγματίσας ſignifie the ſame, ſave that for branding I ſeldom read σιγματίσας, but σίξας. For σίγμα does no more ſignifie a brand with a hot iron then σιγμὴ a point made alſo with a hot iron. They have both one common theam σίζω, which does not ſignifie *pungo*, nor *interpungo* nor *inuro* (for all you Lexicon) but *notam imprimere*, or *pungendo notare*, without any reſtriction to burning or punching. It is therefore no leſſe proper to ſay that σιγμὴ is a mark with a hot iron, then to ſay the ſame of σίγμα. The difference is onely this, that when they marked a ſlave, or a raſcal as you are not ignorant is uſually done here at the Aſſizes in the hand or ſhoulder with a hot iron they called that σίγμα, not for the burning but for the mark. And as it would have been called σίγμα that was imprinted on a ſlave, though made by ſteyning or inciſion, ſo it is σιγμὴ though done with a hot iron. And therefore there was no jumbling of thoſe two words together as for want of reading Greek Authors, and by truſting too much to your Dictionaries (which you ſay are proofes good enough for ſuch a buſineſſe) you were made to imagine. The uſe I have made thereof was to ſhew that a point (both by the word Σημεῖον in Euclide, and by the word σιγμὴ in ſome others) was not *nothing*, but a *viſible* mark; the ignorance whereof hath thrown you into ſo many Paralogiſmes in Geometry.

But do you think you can defend your *Adducis Malleum* aſwel as I have now defended my σιγμὴ? You have brought, I confeſs, above a hundred places of Authors where there is the word *Duco*, or ſome of its compounds; but none of them will juſtifie *Adducis Malleum* and (excepting two of thoſe places) you your ſelf ſeem to condemn them all, comparing yours, with none of the reſt but with theſe two only; both out of *Plautus*, by you, not well underſtood. The firſt is in *Caſina Act. 5. Scen. 2. ubi intro hanc Novam Nuptam deduxi, via rectâ, Clavem abduxi.* Which you preſently preſuming of your firſt thoughts (a peculiar fault to men of your principles) aſſure your ſelf is right. But if you look on the place as *Scaliger* reads it cited by the commentator, you will finde it ſhould be *obduxi*, and that *Clavis* is there uſed for the bolt of the lock. Beſides he bolted it within. Whither then could he carry away the key? The place is to be rendered thus, *when I had brought in this new bride I preſently lockt the door*, and is this *as bad every whit as Adducis Malleum.* The ſecond place is it *Amphytryo Act. 1. Scen. 1. Eam (Cirneam) ut à matre fuerat natum plenum vini Eduxi meri.* Which you interpret

I brought out a flagon of Wine. Unlearnedly. They are the words of *Mercury* transformed into *Sosia.* And to try whether *Mercury* were *Sosia* or not, *Sosia* asked him where he was and what he did during the Battle; to which *Mercury* answered, (who knew where *Sosia* then was and what he did) *I was in the Cellar where I filled a Cirnea, and brought it up full of Wine, pure as it came from its mother.* By the mother of the Wine meaning the Vine, and alluding to the Education of Children, for *Ebibi* said *Eduxi*, and with an *Emphasis* in *meri*, because *Cirnea* (from Κίρνάω, *Misceo*) was a vessel wherein they put water to temper to their Wine. Intimating that though the vessel were *Cirnea*, yet the Wine was *merum.* This is the true sense of the place; but you will have *Eduxi* to be I brought out, though he came not out himself. You see Sir, that neither this is so bad as *Adducis Malleum.*

But suppose out of some one place in some one blind Author you had parralled your *Adducis Malleum*, do you think it must therefore presently be held for good Latin, why more then *Turn the lurry* must be therefore thought good English a thousand years hence, because it will be read in Dr. *Wallis* long-liv'd works. But how do you construe this passage of the Greek Testament Σωθήσονται δὲ διὰ τεκνογονίας, ἐὰν μείνωσιν ἐν πίστει. You construe it thus: *she shall be saved notwithstanding Child bearing, if* (the women) *remain in the faith.* Is child-bearing any obstacle to the salvation of women? You might as well have translated the first verse of Rom. 5. in this manner, *Being then justified by faith, we have peace with God notwithstanding our Lord Jesus Christ.* I let pass your not finding in τεκνογονίας, as good a Grammarian as you are, a Nominative case to μείνωσιν. If you had remembred the place. 1. Pet. Chap. 3. verse 20. σωθήσαν δι' ὕδατος, that is, *They were saved in the waters*, you would have thought your construction justified then very well; but you had been deceived, for διὰ does not there signifie *causam*, nor *ablationem impedimenti* but *transitum*, not *cause or removing an impediment* but *passage.* Being come thus far I found a friend that had eased me of this dispute; for he shewed me a letter written to himself from a learned man, that hath out of very good Authors collected enough to decide all the Grammatical questions between you and me both Greek and Latin. He would not let me know his name, nor any thing of him but only this, that he had better ornaments then to be willing to go clad abroad in the habit of a Grammarian. But he gave me leave to make use of so much of the letter as I thought fit in this dispute. Which I have done and have added it to the end of this writing. But before I come to that, you must not take it ill (though I have done with your School-Discipline) if I examine a little some other of your printed writings as you have examined mine; for neither you in Geometry nor such as you in Church politicks can not expect to publish any unwholesome doctrine without some Antidotes from me, as long as I can hold a pen. But why did you answer nothing to my sixth Lesson? because (you say) it concerned your Colleague onely; No Sir, It concerned you also, and chiefly. For I have not heard that your Colleague holdeth those dangerous principles which I take notice of in you. In my sixth Lesson page 62. upon the occasion of these words, not his but yours. *Perhaps you take the whole History of the fall of Adam for a fable, which is no wonder, seeing you say the rules of honouring and worshiping of God are to be taken form the laws.* In answer to which I said thus. *You that take so heinously, that I would have the rule of Gods worship in a Christian Common-wealth to be taken from the Laws, tell me from whom you would have them taken. From your selfe? Why so, more then from me? From the Bishops? Right, if the Supreme power of the Common-wealth will have it so; if not, why from them rather then from me? From a Consistory of Presbyters themselves or joyned with Lay-Elders, whom they may sway as they please? Good, if the Supreme Governour of the Common-wealth will have it so. If not, why from them rather then from me, or from any man else? They are wiser and learneder then I: It may be so; but it has*

not

not yet appeared. Howsoever, let that be granted. Is there any man so very a fool as to subject himself to the rules of other men in those things which do so neerly concern himself, for the title they assume of being wise and learned, unlesse they also have the sword which must protect them. But it seems you understand the sword as comprehended. If so, Do not you then receive the rules of Gods worship from the Civil Power? Yes doubtlesse, and you would expect, if your Consistory had that sword, that no man should dare to exercise or teach any rules concerning Gods worship which were not by you allowed.

This will be thought strong arguing, if you do not answer it. But the truth is, you could say nothing against it without too plainly discovering your disaffection to the Government. And yet you have discovered it pretty well in your second *Thesis* maintained in the Act at *Oxford* 1654, and since by your self published. This *Thesis* I shall speak briefly to.

Scotch-Church Politicks.

You define Ministers of the Gospel to be those *to whom the preaching of the Gospel by their Office is injoyned by Christ.* Pray you, first, what do you mean by saying preaching *ex Officio* is *enjoyned by Christ.* Are they Preachers *ex Officio*, and afterwards enjoyned to Preach? *Ex Officio* adds nothing to the definition; but a man may easily see your purpose to disjoyn your self from the State by inserting it.

Secondly, I desire to know in what manner you will be able out of this definition to prove your self a Minister? Did Christ himself immediately enjoyn you to preach, or give you orders? No. Who then, some Bishop, or Minister or Ministers? Yes; by what Authority? Are you sure they had Authority immediately from Christ? no. How then are you sure but that they might have none? At least, some of them through whom your Authority is derived might have none. And therefore if you run back for your Authority towards the Apostles times but a matter of sixscore years, you will finde your Authority derived from the *Pope*; which words have a sound very unlike to the voice of the Laws of England. And yet the Pope will not own you. Theres no man doubts but that you hold that your *Office* comes to you by successive imposition of hands from the time of the Apostles. Which opinion in those gentle terms passeth well enough; But to say you derive your Authority from thence, not through the Authority of the Soveraign power civill, is too rude to be endured in a state that would live in peace. In a word you can never prove you are a Minister, but by the Supream Authority of the Common-wealth. Why then do you not put some such clause into your definition? As thus, *Ministers of the Gospel are those to whom the preaching of the Gospel is enjoyned by the Soveraign power in the name of Christ.* What harm is there in this definition, saving onely it crosses the ambition of many men that hold your principles? Then you define the power of a Minister thus; *The power of a Minister is that which belongeth to a Minister of the Gospel in vertue of the Office he holds; in as much as he holds a publick Station, and is distinguished from private Christians. Such as is the power of preaching the Gospel, administring the Sacrament; the use of Ecclesiastical censures; and Ordaining of Ministers &c.*

Again, how will you prove out of this definition that you or any man else hath the power of a Minister, if it be not given him, by him that is the Soveraign of the Common-wealth? For seeing (as I have now proved) it is from him that you must derive your Ministery, you can have no other power then that which is limited in your Orders, nor that neither

longer then he thinks fit. For if he give it you for the instruction of his subjects in their duty, he may take it from you again whensoever he shal see you instruct them with undutiful and seditious principles. And if the Sogeraign power give me command (though without the ceremony of imposition of hands) to teach the Doctrine of my *Leviathan* in the Pulpit, why am not I if my Doctrine and life be as good as yours, a Minister as well as you, and as publick a person as you are? For *publick person* primarily is none but the civil Soveraign, and so secondarily all that are imployed in the execution of any part of the publick Charge. For all are his Ministers, and therefore also Christs Ministers because he is so; and other Ministers are but his Vicars, and ought not to do or say any thing to his people contrary to the intention of the Soveraign in giving them their Commission,

Again, if you have in your Commission a power to Excommunicate, how can you think that your Soveraign who gave you that Commission intended it for a commission to Excommunicate himself, that is, (as long as he stands Excommunicate) to deprive him of his Kingdom) If all Subjects were of your minde, as I hope they will never be, they will have a very unquiet life. And yet this has (as I have often heard) been practised in *Scotland*, when Ministers holding your principles had power enough (though no right) to do it.

And for Administration of the Sacraments, if by the Supream power of the Commonwealth it were commited to such of the Laity as know how it ought to be done as well as you, they would *ipso facto* be Ministers as good as you. Likewise the right of Ordination of Ministers depends not now on the Imposition of hands of a Minister or Presbytery, but on the authority of the Christian Soveraign Christs immediat Vicar and supream Governour of all Persons and Judge of all causes both spiritual and temporal in his own Dominions, which I beleeve you will not denie.

This being evident, what Acts are those of yours which you call *Authoritative*, and receive not from the Authority of the civil power? A Constable does the acts of a Constable *authoritatively* in that sense. Therefore you can no otherwayes claime your power then a Constable claimeth his, who does not exercise his Office in the Constablery of another. But you forget that the Scribes and the Pharisees sit no more in *Moses* Chaire.

You would have every Minister to be a Minister of the Universal Church, and that it be lawful for you to preach your Doctrine at *Rome*; if you would be pleased to try, you would finde the Contrary. You bring no argument for it that looks like reason. Examples prove nothing, where persons, times, and other circumstances differ; as they differ very much now when Kings are Christians, from what they were then when Kings persecuted Christians. It is easie to perceive what you aime at.

You woul fain have Market-day Lectures set up by authority (not by the authority of the Civil power but by the authority of example of the Apostles in the Emission of Preachers to the Infidels) not knowing that any Christian may lawfully preach to the Infidels, that is to say, proclaime unto them that *Jesus* is the *Messiah* without need of being other wayes made a Minister; as the Deacons did in the Apostles time; nor that many teachers unlesse they can agree better, do any thing else but prepare men for faction, nay, rather you know it well enough; but it conduces to your end upon the Market-dayes to dispose at once both Town and Country, under a false pretence of obedience to God, to a Neglecting of the Commandments of the Civil Soveraign, and make the Subject to be wholly ruled by your selves; wherein you have already found your selves deceived. You know how to trouble and sometimes undoe a slack Government, and had need to be warily lookt to, but are not fit to hold the reines. And how should you, being men of so little judgement as not to see the Necessity of unity in the Governour, and of Absolute obedience

in

in the Governed, as is manifeſt out of the place of your *Elenchus* above recited. The Doctrine of the duty of private men in a Common-wealth is much more difficult, not onely then the knowledge of your ſymbols, but alſo then the knowledge of Geometry it ſelf. How then do you think, when you erre ſo groſly in a few Equations, and in the uſe of moſt common words, you ſhould be fit to Govern ſo great Nations as *England*, *Ireland*, and *Scotland*, or ſo much as to teach them. For it is not reading but judgement that enables one man to teach another.

I have one thing more to adde, and that is the diſaffection I am charged with all to the Univerſities. Concerning the Univerſities of *Oxford* and *Cambridge*, *I* ever held them for the greateſt and Nobleſt means of advancing learning of all kinds, where they ſhould be therein imployed, as being furniſhed with large endowments, and other helps of Study, and frequented with abundance of young Gentlemen of good families and good breeding from their childe-hood. On the other ſide, in caſe the ſame means and the ſame wits ſhould be imployed in the advancing of the Doctrines that tend to the weakning of the publick, and ſtrengthning of the power of any private ambitious party, they would alſo be very effectual for that; And conſequently that if any Doctrine tending to the diminiſhing of the civil power were taught there, not that the Univerſities were to blame, but onely thoſe men that in the Univerſities either in Lectures, Sermons, printed Books, or Theſis did teach ſuch Doctrine to their hearers or readers. Now you know very well that in the time of the Roman Religion, the power of the Pope in *England* was upheld principally by ſuch teachers in the Univerſities. You kuow alſo how much the Divines that held the ſame principles in Church Government with you, have contributed to our late troubles. Can I therefore be juſtly taxed with diſaffection to the Univerſities for wiſhing this to be reformed. And it hath pleaſed God of late to reform it in a great meaſure, and indeed as I thought totally, when out comes this your Theſis boldly maintained to ſhew the contrary; Nor can I yet cal this your Doctrine the Doctrine of the Vniverſity, bnt ſurely it wil not be unreaſonable to think ſo, if by publick act of the Vniverſity it be not diſavowed, which done, and that as often as there ſhall be need, there can be no longer doubt but that the Vniverſities of *England* are not onely the Nobleſt of all Chriſtian Vniverſities, but alſo abſolutly, & of the greatſt benefit to this Common-wealth that can be imagined, except that benefit of the head it ſelf that uniteth and ruleth all. I have not here perticularized at length all the ill conſequences that may be deduced from this Theſis of yours, becauſe I may, when further provoked, have ſomewhat to ſay that is new.

So much for the 3. σιγμὴ.

An extract of a Letter concerning the Grammaticall part of the Controverſie between Mr. HOBBES and Dr. WALLIS.

Mr. Hobbes hath theſe words

Longitudinem percurſam motu uniformi, cum impetu ubique ipſi B D æquali. Dr. *Wallis* ſaith *cum* were better out; unleſſe you would have *impetus* to be onely a companion, not a *cauſe*. Mr. *Hobbes* anſwered it was the *Ablative caſe of the manner*. The truth is the Ablatives caſe of the *manner*, and *cauſe* both, may be uſed with the conjunction *cum*, as may be juſtified. *Cicero* in the 2. *de Nat. Deor. moliri aliquid cum labore operoſo ac moleſto*; and in his Oration for *Cæcina*. *De ſe autem hoc prædicat, Antiocho Ebulij ſervo imperâſſe ut in Cæcinã advenientem cum ferro invaderet.* Let us ſee then what Dr. *Wallis* objects againſt *Tully*; where a Cauſality is imported; Though we may uſe *with* in Engliſh, yet not *cum* in Latine, to "kill with a ſword (importing this to have an inſtrumental or cauſal influence, and not "onely that it hangs by the mans ſide whileſt ſome other weapon is made uſe of) is not in Latine, *occidere cum gladio*, but *gladio occidere*. This ſhews that the Dr. hath not forgot his *Grammer*, for the ſubſequent examples as well as this rule are borrowed thence. But yet he might have known that great Perſonages have never confined themſelves to this *Pedantry*, but have choſen to walk in a greater latitude. Moſt of the Elegancies and Idioms of every Language are exceptions to his Grammar. But ſince Mr. *Hobbes* ſaith it is the Ablative caſe of the *manner*, there is no doubt it may be expreſſed with *cum*. The Doctor in the mean time knew no more then what *Lilly* had taught him; *Alvarez* would have taught him more. And *Voſſius* in his Book *de conſtructione* Cap. 47. expreſſly teacheth, *Ablativus cauſæ, inſtrumenti, vel modi, non à verbo regi ſed à præpoſitione omiſſâ, à vel ab, de, è, vel ex, præ, aut cum, ac præpoſitiones eas quandoq; exprimi niſi quòd cum ablativis inſtrumenti haud temerè invenias*; and afterwards he ſath *non timerè imitandum*. If this be ſo, then did Mr. *Hobbes* ſpeak *Grammatically*, and with *Tully*, but not *uſually*. And might not one retort upon the Doctor, that *Voſſius* is as great a *Critick* as he.

His next reflection is upon *prætendit ſcire*, this he ſaith is an *Angliciſme*. If this be all his Accuſation, upon this ſcore, we ſhall loſe many expreſſions that are uſed by the beſt Authors, which I take to be good Latiniſmes, though they be alſo *Angliciſmes*, the latter being but an imitation of the former. The Doctor therefore was too fierce to condemn upon ſo general an account, that which was not to have been cenſured for being an *Angliciſme*, unleſſe alſo it had been no *Latiniſme*. Mr. *Hobbes* replies, that the Printer had omitted *ſe*. He ſaith, this mends the matter a little. It is very likely, for then it is juſt ſuch another *Angliciſme* as that of *Quintilian*; *Cùm loricatus in foro ambularet, prætendebat ſe id metu facere*. The Doctor certainly was very negligent, or elſe he could not have miſſed this in *Robert Stephen*. Or haply he was reſolved to condemn *Quintilian* for this and that other *Angliciſme*, *Ignorantia prætendi non poteſt*, as all thoſe that

that have uſed *prætendo*, which are many and as good Authors as Doctor *Wallis* that makes his own Encomiaſts (not an Engliſh man) amongſt them to white *Anglicismes*.

Then he blames *Tractatus hujus partis tertiæ, in quâ motus & magnitudo per ſe & abſtractè conſideravimus, terminum hic ſtatuo.* Here I muſt confeſſe the exception is colourable, yet I can parallel it with the like objection made by *Eraſmus* againſt *Tully*, out of whom *Eraſmus* qnotes this paſſage; *Diutius commorans Athenis; quoniam venti negabant ſolvendi facultatem, erat animus ad te ſcribere:* and excuſes it thus, that *Tully* might have had at firſt in his thoughts *volebam* or *ſtatuebam*, which he afterwards relinquiſhed for *erat animus*, and did not remember what he had antecedently written, which did not vary from his ſucceeding thoughts, but words. And this excuſe may paſſe with any who knows that Mr. *Hobbes* values not the ſtudy of words, but as it ſerves to expreſſe his thoughts, which were the ſame whether he wrote; *in quâ motus & magnitudo per ſe at abſtractè conſiderati ſunt*, or *conſideravimus*. And if the Dr. will make this ſo capital; he muſt prove it *voluntary*, and ſhew that it is greater then what is legible in the puny Letter of his *Encomiaſt*, whom he would have to be beyond exception.

Now followes his ridiculous apologie for *adducis malleum, ut occidas muſcam*. The cauſe why he did uſe that proverb (of his own phraſing) was this. Mr. *Hobbes* had taken a great deal of paines to demonſtrate what Dr. *Wallis* thought he could have prov'd in ſhort; upon this occaſion he objects, *ad ducis malleum ut occidas muſcam*, which I ſhall ſuppoſe he intended to Engliſh thus, *you bring a beetle to kill a fly*. Mr. *Hobbes* retorted that *adduco* was not uſed in that ſenſe. The Dr. vindicates himſelf thus; *duco, deduco, reduco, perduco, produco*, &c. ſignifie ſtrange things, ergo, *adduco* may be uſed in that ſenſe; which is a moſt ridiculous kinde of arguing, where we are but to take up our Language from others, and not to coyne new phraſes. *It* is not the *Grammar* that ſhall ſecure the Dr. nor weak Analogies, where Elegance comes in conteſt. To juſtifie his expreſſion he muſt have ſhewed it *uſu tritum*, or alledged the Authority of ſome Author of great note for it. I have not the leaſure to examine his impertinent citations about thoſe other compounds, nor yet of that ſimple verb *duco*; nay, to juſtifie his ſaying he hath not brought one parallel example. He talkes indeed very high, that *duco* (with its compounds) is a word of a large ſignification, & amongſt the reſt to *bring, fetch, carry* &c. is ſo exceeding frequent in all Authors (*Plautus, Terence, Tully, Cæſar, Tacitus, Pliny, Seneca, Virgil, Horace, Ovid, Claudian*, &c that he muſt needs be either maliciously blind, or a very ſtranger to the Latine tongue that doth not know it, or can have the face to to denie it. I read what will be my doom for not allowing his Latine; yet I muſt profeſſe I dare ſecure the Dr, for having read all Authors, notwithſtanding his aſſertion, and I hope he will do the like for me. And for thoſe which he hath read, had he brought no better proofes then theſe, he had, I am ſure, been whipped ſoundly in *Weſtminſter*-School, for his impudence as well as ignorance, by the learned Maſter therof at preſent. But I dare further affirm, the Dr. hath not read in this point any, but onely conſulted with *Robert Stephen's Theſaurus Linguæ Latinæ*, whence he hath borrowed his allegations in *adduco*; and for the other I had not ſo much Idle time as to compare them. And leſt the fact might be diſcovered he hath ſophiſticated thoſe Authors whence *Stephen* cites the expreſſions, and impoſed upon them others. If it be not ſo, or that the Dr. could not write it right when the copy was right before him, let him tell me where he did ever read in *Plautus, adducta res in faſtidium*. I finde the whole ſentence in *Plinie's* preface to *Veſpaſian* (out of whom in the precedent Paragraph he cites it) about the middle: *alia verò ita multis prodita, ut in faſtidium ſint adducta*, which is the very example *Stephanus* uſeth

useth, although he doth premise his *adducta res in fastidium*. Let the Dr. tell where he ever did read in *Horace Ova nocturna &c. tædium vini adducunt*. Did he (or any else) with the interposition of an &c.) make Trochaicks? I say, and *Stephanus* saies so too, that it is in *Pliny* lib. 13. cap. 15. neer the end; the whole sentence runs thus; *Ebriosis Ova nocturna per triduum data in vino, tædium ejus adducunt*. I doubt not but these are the places he aimed at, although he disguised and minc'd the Quotations; if they be not, I should be glad to augment my *Stephanus* with his Additions.

These things premised, I come to consider the Doctors proofes: *Res eò adducta est: adducta vita in extremum: adducta res in fastidium: rem ad mucrones & manus adducere: contracta res & adducta in angustum: res ad concordiam adduci potest: in ordinem adducere: adducere febres, sitim, tædium vini* (all in *Robert Stephen*) betwixt which and *adducere malleum*, what a vast difference there is, I leave them to umpier *quitereres & religiosas nasi sunt aures*, who are the competent Judges of Elegancy, and onely cast in the verdict of one or two, who are in any place (where the purity of the Latin tongue flourisheth) of great esteeme. *Lossæus* in his *Scopa Linguæ Latinæ, ad purgandam Linguam à barbarie*, &c. (would any think that the Doctors elegant expresion, frequent in all Authors, which none but the malicious or ignorant can deny, should suffer so contumelious an expurgation?) *Lossæus* (I say) hath these words, *Adferre plerique minus attenti utuntur pro adducere. Quod Plautus, in Pseudolo, insigni exemplo notat. C. Attuli hunc. P. Quid attulisti? T. Adduxi volui dicere. P. Quis istic est? C. Charinus.* Satis igitur admonet discriminis inter *ducere, reducere, adducere & abducere, quæ de personâ; et ferre, adferre* &c. *quæ de re dicuntur*. Idem. *Demetrium, quem ego novi, adduce; argentum non moror quin feras. Cavendum igitur est ne vulgi more*, (let the Dr. mark this, and know that *this Author is authentick amongst the Ciceronians*) *adferre de personâ dicamus, si diadducere; licet et hoc de certis quibusdam rebus non inepte dicatur*. In this last clause he saith as much as Mr. *Hobbes* saith, and what the Dr. proves; but that ever the Dr. brought an example which might resemble *adducis malleum*, is denied; for I have mentioned already his allegations every one, of *adduco*. Another Author (a fit Antagonist for the elegant Dr.) is the *Farrago sordidorum Verborum*, joyned with the Epitome of L. *Valla's elegancies*. He saith, *Accesse, adduc Petrum, latinè dicitur pro eo quod pueri dicunt, adfer Petrum*. And this may suffice to justifie *Mr. Hobbes's* exception, who proceeded no further then this Author to tell the Doctor that *adduco* was used of Animals. But the Dr. replies, *this signification is true, but so may the other be also*. I say, if it never have been used so, it cannot be so, for we cannot coine new Latine words, no more then French or Spanish who are Forreigners. *Mr. Hobbes* was upon the negative, and not to disprove the contrary opinion. If the Dr. would be believed, he must prove it by some example (which is all the proofe of elegancy) and till he do so, not to beleeve him, it is sufficient not to have cause. But Dr *Wallis, why not adduco for a hammer as well as a tree?* I answer, yes, equally for either, and yet for neither; Did ever any body go about to mock his Readers thus solemnly? I do not finde, (to my best remembrance) any example of it in *Stephen*, and the Dr. is not wiser then his Book; if there be, it is strange the Dr. should omit the onely pertinent example, and trouble us with such impertinences for three or four pages. In *Stephen* there are *adducere habenas* and *adducere lorum*, but in a different sense. It is not impossible I may guesse at the Doctors aime. In *Tully de Nat. Deor* (as I remember) there is this passage; *Quum autem ille respondisset, in agro ambulanti ramulum adductum, ut remissus esset, in oculum suum recidisse*, where it signifies nothing else but to be *bent, bowed, pulled back*, and in that sense, *the hammer of a Clock*, or, that *of a Smith, when he fetcheth his strok*, may be said *adduci*. And this I conceive the Doctor would have us in the close think to have been his meaning; else what doth he

drive

drive at in these words? "When you have done the best you can, you will not be able "to find better words then *adducere malleum* and *reducere*, to signifie the two contrary "motions of the *Hammer*, the one when you strike with it, (*excellently trivial!*) The "other when you take it back (*better and better*) *What to do?* to fetch another stroak. If any can believe that this was his meaning, I shall justifie his Latine, but must leave it to him to prove it sense. If he intended no more, why did he go about to defend the other meaning, and never meddle with this? Which yet might have been proved by this one example of mine? May not therefore his own saying be justly retorted upon him in this case, *Adducis malleum, ut occidas muscam?*

Another exception is. *Falsa sunt et multa ejusmodi (propositiones)* I wish the Doctor could bring so good Parallels, and so many, out of any Author, for his *Adducis malleum*, as *Tully* affords in this case. Take one for all out of the beginning of his *Paradoxes*; *Animadverti sæpe Catonem, cum in senatu sententiam diceret, Locos graves ex Philosophia tractare, abhorrentes ab hoc usu forensi et publico, sed dicendo consequi tamen, ut illa etiam populo probabilia viderentur.* This is but a *Solœcophanes*, and hath many presidents more, as in the second book of his *Academical questions*, &c.

I cannot now stay upon each particular passage; I do not see any necessitie of tracing the Dr. in all his figaries. Now he diffallows *tanquam diceremus, as if we should say.* But why is that less tolerable then *tanquam feceris, as if you had done?* "It should be *quasi* ("forsooth!") Or *ac si*, or *tanquam si*, which is *Tulli's* own word. (What is *tanquam* "*si* become but one word?) *tanquam si tua res agatur &c.* Good Dr. leave out *Tully* and all *Ciceronians*, or you will for ever suffer for this, and your *Adducis malleum*. Is not this to put your self on their verdict, when you oppose Mr. *Hobs* with *Tully*? But the Dr. gives his reason. And though he hath had the luck in his *Adducis malleum*, to follow the first part of that saying, *Loquendum cum vulgo*, yet now it is, *sentiendum cum sapientibus.* For *tanquam* without *si* signifies but, *as*, not, *as if.* It is pity the Dr. could not argue in Symbols too, that so we might not understand him, but suppose all his Papers to carry evidence with them, because they are *Mathematically* scratch'd. How does he construe this,

Plance, tumes alto Drusorum sanguine, tanquam
Feceris ipse aliquid, propter quod nobilis esses.

So *Cœlius*, one much esteemed by *Cicero*, who hath inserted his Epistles into his works, saith in his fifth Epistle (Tul. Epist. fam. lib. 8. Ep. 5.) *Omnia desiderantur ab eo tanquam sibi denegatum sit ei quo minus paratissimus esset qui publico negotio præpositus est.* But it was not possible the Dr. should know this, it not being in *Stephen*, where his examples for *tanquam si* are.

But the Dr. having pitched upon this Criticisme, and penned it, some body, I believe, put him in mind of the absurditie thereof; and yet the generous *Professour* (who writes running hand and never transcribed his papers, if I am not misinformed) presumed no body else could be more intelligent then he, who had perused *Stephen*. He would not retract any thing, but subjoyns, "That he will allow it as passable, because "other modern writers, and some of the Antients, have so used it, as Mr. *Hobs* hath done. I know not what Authors the *Dr.* meant, for, if I am not much mistaken, I do not find any in *Stephen*. His citation of *Columella* is not right *L. 5. cap. 5.* (nor can I deduce any thing thence till I have read the passage) but if he take *Juvenal* and *Cœlius* for modern Authors, I hope he will admit of *Accius*, *Nævius*, and *Carmenta* for the only antients. Let him think upon this Criticisme, and never hope pardon for his *Adducis malleum*, which is not half so well justified, and yet none but *mad men* or *fools* reject it.

But

But certainly the Dr. should not have made it his businesse to object *Anglicismes*, in whose Elenchus I doubt not but there may be found such phrases as may serve to convince him that he is an English man, However Scottified in his principles. If the Dr. doubt of it, or but desire a Catalogue, let him but signifie his minde, and he shall be furnished with a *Variorum*. But I am now come to the main controversie about *Empusa*. The Dr. saith nothing in defence of his *quibble*, nor gives any reason why he jumbled Languages to make a filly clinch, which will not passe for wit either at *Oxford*, or at *Cambridge*, no nor at *Westminster*.

"It seems he had derived *Empusa* from ἐν and πους, and said it was a kinde of *Hobgob-*
"lin that hopped upon one legge; and hence it was that the boyes play (*Fox come out of thy dore*) came to be called *Empusa*. I suppose he means *Ludus Empusæ*. This derivation he would have to be good, and that we may know his reading (though he hath scarce confuted any of the Authors) he saith Mr. *Hobbes* did laugh at it, until somebody told him that it was in the Scholiast of *Aristophanes* (as good a Critick as Mr. *Hobbes*) *Eustathius*, *Erasmus*, *Cælius Rhodiginus*, *Stephanus*, *Scapula*, and *Colepine*. But sure he doth not think to scape so. To begin with the last, *Colepine* doth indeed say, *una incedit pede, unde et nomen*. But he is a *Moderne*, and I do not see why his Authority should outweigh mine, this Authors Reasons do not. He refers to *Erasmus* and *Rhodiginus*. *Erasmus* in the adage, *Proteo mutabilior*, hath these words of *Empusa*. *Narrant autem unu vidisse pede* (this is not to hopp) *unde et nomen inditum putant*. Ἐμπουσαν ὅτι μονοπους ἐστιν. He doth not reffuse his approbation of the derivation at all, onely lets you know what Etymologies some have given before him. And doth any body think that Dr. *Harmar* was the first which began to shew his wit (or folly) in etymologizing words? *Cælius Rhodiginus* doth not own the derivation, onely saith. *Nominis ratio est, ut plures Eustathio, quia uno incedit pede*. (Is this to hopp?) *sed nec desunt qui alterum interpretentur habere eam pedem: & inde appellatam Empusam*; *quod an Batrachis Aristophanes expressit*. And then he recites the interpretation that *Aristophanes*'s Scholiast doth give upon the text of which by and by. If any credit be to be attributed to this allegation, his last thoughts are opposite to Dr. *Wallis*; and *Empusa* must be so called, not because she hopped upon one legg, but because she had but one, the other being brasse. But for the former derivation he refers to *Eustathius*.

As to *Eustathius*, I do easily conjecture that the Reader doth beleeve, that *Rodiginus* doth mean *Eustathius* upon *Homer*, for that is the book of most repute and fame, his other piece being no way considerable for bulk or repute. But it is not that book nor yet his History of *Ithaca*, but his notes upon the 22 verse of *Dionysius Periegetes*. The Poet had said of the Rone *Ister*, that it was,

Ἔχθρὴ Ἐμπούσαις καὶ ἄλλοις εἰδώλοις,

Upon which *Eustathius* thus remarks; Δοκεῖ δὲ ἀπεχθὴς εἶναι ἡ Νίλῳ αὐλὴ καὶ πανταχόθεν ὀχυρωμένη. οὐκ ἂν εἰς ἡ Ἔμπουσα. δαιμόνιόν τι περὶ τὴν Ἑκάτην, ἣν καὶ Φάσκων ἀποκαλεῖσθαι (*forte* διορθοῦσθαι *Steph.*) ὅθεν καὶ πανσκαὶ ἔφη, ὡς ἴσως ἐκ τοῦ μιᾶς ποδὸς χάλκεον ἔχειν τὸ σῶμα. This testimony doth not prove any thing of *hopping*, and as to the derivation, I cannot but say that *Eustathius* had too much of the Grammarian in him, and this is not the first time, neither in this book, nor elsewhere, wherein he hath trifled. It is observable out of the place that there were more *Empusa*'s then one, as indeed the name is applied by several men to any kinde of frightful phantasme. And so it is used by several Authors, and for as much as phantasmes are various, according as the persons affrighted have been severally educated, so every man did impose this name upon his own apprehensions. This gave men occasion to fain *Empusa*

puſa as ſuch (for who will beleeve that ſhe was not apprehended as having four leggs, when ſhe appeared in the form of a Cow, dog, &c.) but as apprehended by *Bacchus* and his man at that time. I do not finde that ſhe appeared in any ſhape, but ſuch as made uſe of legges in going, whence I imagine that *Empuſa* might be oppoſite to the θεοὶ πρόποδες, which appellation was anciently fixed upon the gods (*propitious*) upon a two-fold account, firſt for that they were uſually effigiated as having no feet (which is evident from ancient ſculpture) and ſecondly, for that they are all ſaid not to walk, but rather ſwim, if I may ſo expreſſe that *non gradiuntur, ſed fluunt*, which is the aſſertion of all the commentators I have ever ſeen upon that verſe of *Virgil*,

Et vera inceſſu patuit dea ———

This whole diſcourſe may be much illuſtrated from a Paſſage in *Heliodorus*, *Æthiop.* L. 3. Sect. 12, 13. *Calaſiris* told *Cnemon* that the gods *Apollo* and *Diana* did appear unto him, *Cnemon* replied, Ἀλλὰ πίνα δὴ πρόπον ὑφασκες ἐνδιδόναι σοι τὰς θεὰς, ὅτι μὴ ἐνύπνιον ἦλθον, ἀλλ' ἐναργῶς ἐφάνησαν; upon this the old Prieſt anſwered, that both gods and demons, when they appear to men, may be diſcovered by the curious obſerver, both in that they never ſhut their eyes, καὶ τῷ βαδίσματι πλέον, ὃ κατὰ διάκοσιν τῶν ποδῶν οὐδὲ μεταδέσιν ἀνυομένῳ, ἀλλὰ κατά τινα ῥοῦμιν ἀέριον, καὶ ὁρμὴν ἀπρεπόδισον, τιμιώτατον μᾶλλον τὸ πεπεῖρον ἢ διαπρεπομένων. Διὸ δὴ καὶ τὰ ἀγάλματα τῶν θεῶν Αἰγύπτιοι τῷ ποδὶ ζευγνύντες καθάπερ ἐνδεῖντες ἵστασιν· ἃ δὴ καὶ Ὅμηρος εἰδὼς ἄπτει Αἰγυπτίῳ, καὶ τῷ ἱερὰν πάδευσιν ἐκδιδαχθείς, συμβολικῶς τοῖς ἔπεσιν ἐναπέδετο, τοῖς δυναμένοις σωφρονεῖν γνωρίζειν κατὰλιπών, ἐπὶ τὸ πρεπωδὲς τὸ

Ἴχνια γὰρ μετόπισθε ποδῶν ἠδὲ κνημάων
Ῥεῖ ἔγνων ἀπιόν[τ]α.

οἷον ῥέοντα· ἐν τῇ πορείᾳ, τοῦτο γὰρ ἐστὶ τὸ ῥεῖ· ἀπόντος, καὶ οὐχ ὡς πινες ἠκούσαντες, ῥᾳδίως ἔγνων ὑπολαμβάνοντες. *Farnaby* upon the place in *Virgil* obſerves, that, *Deorum inceſſus eſt continuus & æqualis, non dimotis pedibus, neque tranſpoſitis, ἀλλὰ κατὰ ῥοῦμιν ἀέριον. Cornelius Schrevelius* in the new *Leyden* notes, ſaith, *Antiquiſſima quæque Deorum ſimulachra, quod obſervarunt viri magni, erant τῶν πόδας συμβεβηκότα, dijq; ipſi non gradiuntur ſed fluunt.* Their ſtatues were ſaid to ſtand rather upon Columnes then upon leggs; for they ſeeme to have been nothing but columnes ſhaped out into this or that figure, the baſe whereof carrying little of the repreſentation of a foot. Theſe things being premiſed I ſuppoſe it eaſie for the intelligent Reader to finde out the true Etymology of *Empuſa*, *quaſi* ἐν πυσὶν ὖσα, or *βέβυσα* from going on her feet, whereas the other *gods* and *demons* had a different gate. If any can diſlike this deduction, and think her ſo named from ἰνίτης, whereas ſhe alwaies went upon two leggs (if her ſhape permitted it) though ſhe might draw the one after her, as a man doth a wooden legge; I ſay if any, notwithſtanding what hath been ſaid, can joyn iſſue with the Doctor, my reply ſhall be, Σοὶ μὲν ταῦτα δοκοῦντ' ἐστὶν, ἐμοὶ δὲ πάδε.

Now as to the words of *Ariſtophanes* upon which the Scholiaſt deſcants, they are theſe. Speaking of an Apparition ſtrangely ſhaped, ſometimes like a Camel, ſometimes like an oxe, a beautiful woman, a dog &c. *Bacchus* replies, Ἔμπουσα τοιγὰρ γ' ἔστ. Ξα. πυρὶ γὰρ λάμπεται ἅπαν τὸ σῶμα, καὶ σκέλος χαλκοῦν ἔχει. Δι. Νὴ τὸν Ποσειδῶ, καὶ βολίπουν θἠτέρου Ξα. Ἐ ἰὼ ἰώ. The ſcholiaſt hereupon tells us that *Empuſa* was φάντασμα δαιμόνιον ὑπὸ ἑκάτης ἐπιπεμπόμενον καὶ φαντάσιον· πᾶς δυσχεῖον· ὁ δεικτικὸς πολλὸς μέρους ἐξαλλάσσον καὶ ὁτὲ μὲν ταῦρος αὐτὴν μονόπους εἶναι. καὶ ἐπιμολογεῖται ὅτι ὄνου ἐστὶ πόδα, διὰ τὸ ἐν πόδι μόχθηρα. And this is all that is material in the Scholiaſt, except that he addes by and by, that βολίπουν σκέλος is all one with the leg of an Aſſe.

And this very text and Scholiast is that to which all the Authors he names, and more, do refer.

I come now to *Stephen*, who in his Index and in the word ποδίζω, gives the derivation of *Empusa*. Ποδίζω, *gradior, incedo*, (not to hop) *sic Suidas* Ἔμπουσαν *dictam ait* παρὰ τὸ ἑνὶ ποδίζειν. In the Index thus; *sunt qui dictam putent* παρὰ τὸ ἑνὶ ποδίζειν., *quod uno incedat pede, quasi* Ἔμπουσαν, *alterum enim pedem aneum habet*. But neither *Stephen*, nor any else (except *Suidas*, whom the Hypercritical Dr. had not seen) no not the Scholiast of *Aristophanes* (a better Critick then Mr. *Hobbes*) doth relate the etymology as their own. Nay, there is not one saith, *Empusa* hopped on one legg, which is to be proved out of them. The great Etymological Dictionary deriveth it παρὰ τὸ ἐμποδίζειν, to *hinder, let* &c. its apparition being a token of ill luck. But as to the Doctors deduction, it saith Ἔμπουσα Ψιλοῦται, εἰ καὶ δοκεῖ παρὰ τὸ ἕνα συγκεῖσθαι. It doth onely *seem* so. And it is strange that ἐν should not alter onely its *aspiration*, but change its ν into μ, which *I* can hardly beleeve admittable in Greek, least there should be no difference betwixt its derivatives and those of ἐν. When I consider the several μορμόνες which the Grecians had, some whereof did fly, some had no leggs &c. I can think that the origine of this name may have been thus. Some amazed person saw a *spectrum*, and giving another notice of it, his companion might answer, it is Βειμὼ, Μορμὼ, Ἠκάτη, &c. but he meeting with a new phantasme, cryes, ἐν ποσὶ βαίνει or βαδίζει, for which apprehension of his some body coyned this expression of Ἔμπουσα. It may also be possibly deduc'd from Ἐμποδίζω, so that τύχη ἐμποδίζουσα might afterwards be reduced to the single terme of *Empusa*. Nor do I much doubt, but that those who are conversant in Languages, and know how that several expressions are often jumbled together to make up one word upon such like cases, will think this a probable origination. I beleeve then that Mr. *Hobbes's* friend did never tell him it was in *Eustathius*, or that *Empusa* was an *hopping phantasme*: It had two legges, and went upon both, as a man may upon a wooden legge. Ἔμπουσα is also a name for *Lamia*, and such was that which *Menippus* might have married, which I suppose did neither hop nor go upon one legge, for he might have discovered it. But Mr. *Hobbes* did not except against the derivation (although he might justly, derivations made afterwards carrying more of fancy then of truth, and the Dr. is not excused for asserting what others barely relate, none approve) but asked him, where that is, in what Authors *he read that boyes play to be so called*. To which question the Dr. (to shew his reading and the good Authors he is conversant in) replies, *In Junius's Nomenclator, Rider and Thomas's Dictionary, sufficient Authors in such a business*, which me thinks no man should say that were neer to so copious a Library. It is to be remembred that the trial now is in *Westminster* School, & amongst *Ciceronians*, neither whereof wil allow those to be sufficient Authors of any Latine word. Alas they are but *Vocabularies*; and if they bring no Author for their allegation, all that may be allowed them is, that by way of allusion our modern play may be called *Ludus Empusæ*. But that it is so called, we must expect till some Author do give it the name. These are so good Authors that I have not either of them in my Library. But I have taken the paines to consult, first *Rider*; I looked in him (who was onely Author of the English Dictionary) and I could not finde any such thing. Tis true in the *Latine* Dictionary which is joyned with *Rider*, but made by *Holyoke*; (O that the Doctor would but mark!) in the Index of obsolete words, there is *Ascoliasmus, Ludus Empusæ, Fox to thy hole*, for which word, not signification, he quoteth *Junius*. The same is in *Thomasius*, who refers to *Junius* in like manner. But could the Dr. think the word obsolete when the play is still in fashion? Or doth he think that this play is so ancient, as to have had a name so long ago, that it should now be grown obsolete? As for *Junius's* interpretation of *Empusa*, it is this, *Empusa, spectrum quod se infelicibus ingerit, uno pede ingrediens*. Had the Dr. ever read him, he would have quoted him for his derivation of *Empusa*, I suppose.

I suppose. In *Ascoliasmus* he saith, *Ascoliasmus, Ludus Empusæ fit ubi, altero pede in aere librato unico subsiliunt pede.* ἀσκολιασμὸς, *Pollux. Almanicè. Hinctelen. Belgicè, Op een been springhen. Hinctepincten* Flandris. But what is it in English he doth not tell,, although he doth so in other places often. What the Dr. can pick out of the *Dutch* I know not; but if that do not justifie him, as I think it doth not, he hath wronged *Junius*, and grossely imposed upon his Readers.

But to illustrate this controversie further, I cannot be perswaded the Dr. ever looked into *Junius*, for if he had, I am confident, according to his wonted accuratnesse, he would have cited *Polluxs's onomasticon* into the bargin, for *Junius* refers to him, and I shall set down his words, that so the Reader may see what *Ascoliasmus* was, and all the Drs. Authors say *Ludus Empusæ* and *Ascoliasmus* were one and the same thing. *Jul. Pollux*, Lib. 9. Cap. 7. Ὁ δὲ Ἀσκωλιασμὸς. (old editions read it Ἀσκολιασμὸς et ασκολιάζω) τοῦ ἑτέρου ποδὸς αἰωρουμένου, κατὰ μόνου τοῦ ἑτέρου πηδᾶν ἐποίει, ὅπερ Ἀσκωλιάζειν ὠνόμαζον. ἤτοι εἰς μῆκος ἐνήλλαντο. ἢ ὁ μὲν ἐδίωκεν οὕτως, οἱ δὲ ὑπέφευγον ἐπ' ἀμφοῖν θεόντες, ἕως τινὸς τῷ φερομένῳ ποδὶ ὁ διώκων συνηθῇ τυχεῖν. ἢ καὶ στάντες ἐπήδων, ἀριθμοῦντες τὰ πηδήματα, προσέκειτο γὰρ τῷ πλήθει τὸ νικᾶν. Ἀσκωλιάζειν δὲ ἐκαλεῖτο καὶ τὸ ἐπιπηδᾶν ἀσκῷ κενῷ ὑποπλέῳ πνεύματος ἠλειμμένῳ, ἵνα περ ὀλισθάνοιεν περὶ τὴν ἀλοιφήν. "So that *Ascoliasmus*, and consequently, *Ludus Empusæ*, was a certain sport which consisted "in hopping, whether it were by striving who could hoppe furthest, or whether onely "one did pursue the rest hopping, and they fled before him on both leggs, which game "he was to continue till he had caught one of his fellows, or whether it did consist in "the boyes striving who could hop longest. Or lastly, whether it did consist in "hopping upon a certain bladder, which being blown up, and well oyled over, was "placed upon the ground for them to hop upon, that so the unctuous bladder might slip "from under them and give them a fall. And this is all that *Pollux* holds forth. Now of all these wayes there is none that hath any resemblance with our, *Fox to thy hole*; but the second: and yet in its description there is no mention of beating him with gloves, as they do now adayes, and wherein the play consists as well as in hopping. It might notwithstanding be called *Ludus Empusæ*, but not in any sort our *Fox to thy hole*, So that the Dr. and his Authors are out; imposing that upon *Junius* and *Pollux*, which they never said. And thus much may suffice as to this point. I shall onely adde out of *Meursius's Ludi Geaci*, that *Ascolia* were not *Ludus Empusæ* but *Bacchi sacra*, and he quotes *Aristophanes's* Scholiasts in *Plutus*, Ἀσκώλια ἑορτὴ διονύσου ἀσκὸν γὰρ οἴνου πληροῦντες, ἐπὶ ποδὶ τοῦτον ἐπεπήδων, καὶ ὁ πηδήσας ἆθλον εἶχε τὸν οἶνον. As also *Hesychius*; Ἀσκωλιάζειν, κυρίως τὸ ἐπὶ τοὺς ἀσκοὺς ἅλλεσθαι.

But I could have told the Dr. where he might have read of *Empusa* as being the name of a certain sport or game, and that is, *in Turnebus adversar.* Lib. 27. Cap. 33 There he speaks of several games mentioned by *Justinian* in his *Code*, at the latter end of the third book; one of which he takes to be named *Empusa*; addding with all, *that the other are games, it is indisputable*, onely *Empusa, in lite & causa erit, quod nemo nobis facile assensurus sit Ludum esse, cùm constet spectrum quoddam fuisse formas variè mutans. Sed quid vetat eo nomine Ludum fuisse? certè ad vestigia vitiatæ Scripturæ quàm proximè accedit.* Yet he onely is satisfied in this conjecture, till somebody else shall produce a better. And now what shall I say? was not *Turnebus* as good a Critick, and of as great Reading as Dr. *Wallis*? who had read over *Pollux*, and yet is afraid that no body will beleeve *Empusa* to have been a game, and all he alledgeth for it is, *quid vetat?* Truely all I shall say, and so conclude this businesse, is, that he had read over an infinitie of Books, yet had not had the happinesse which the Dr. had, to consult with *Junius's Nomenclator*, *Thomasius* and *Riders Dictionary*, *Authors sufficient in such a case.*

I now come to the Doctors last and greatest triumph, at which I cannot but stand in admira-

admiration, when I consider he hath not got the victory. Had the Dr. been pleased to have conversed with some, of the fift form in *Westminster* Schoole (for he needed not to have troubled the learned Master) he might have been better informed then to have exposed himself thus.

Mr. *Hobbes* had said that στιγμὴ signified *a mark with a hot iron*; upon which saying the Dr. is pleased to play the droll thus, "Prethee tell mee, good *Tho.* before we leave "this point (O the wit of a Divinity Dr. !) who it was told thee that στιγμὴ was a mark "with an hot iron? for tis a notion I never heard til now (and do not beleeve it yet.) Ne-"ver beleeve him again that told thee that lye, for as sure as can be, he did it to abuse thee, "στιγμὴ signifies a distinctive point in writing made with a pen or quill, not a mark made "with a *hot iron*, such as they brand rogues withal; and accordingly στίζω, διαστίζω, *di-"stinguo, interstinguo*, are often so used. It is also used of a *Mathematical* point, or some-"what else that is very small, στιγμὴ χρόνου, a moment, or the like. What should come in "your cap, to make you think that στιγμὴ signifies a mark or brand with a *hot iron*? "I perceive where the businesse lies; 'twas στίγμα tan in your minde when you talked "of στιγμὴ, and because the words are somewhat alike, you jumbled them both together, "according to your usual care and accuratenesse, as if they had been the same.

When I read this, I cannot but be astonished at the Doctors confidence, and applaud him who said, ἀμάθεια θάρσος φέρει. That the Dr. should never hear that στιγμὴ signifies *a mark with a hot iron*, is a manifest argument of his ignorance. But that he should advise Mr. *Hobbes* not to beleeve his own Readings or any mans else that should tell him it did signifie any such thing, is a piece of notorious impudence. That στιγμὴ *signifies a distinctive point in writing made with a pen or quill*, (is a pen one thing and a quill another to write with?) no body denies. But it must be withal acknowledged it signifies many things else. I know the Dr. is a *good Historian* (else he should not presume to object the want of History to another) let him tell us how long ago it is, since men have made use of pens or quills in writing; for if that invention be of no long standing, this signification must also be such, and so it could not be that from any allusion thereunto the Mathematicians used it for a point. Another thing I would fain know of this great Historian, how long ago στίζω and διαστίζω began to signifie *interjungo*? for if the Mathematicks were studied before the mystery of Printing was found out (as shall be proved when ever it shall please the Dr. out of his no reading to maintain the contrary) then the *Mathematical* use thereof should have been named before the *Grammatical*. And if this word be translatitions, and that Sciences were the effect of long contemplation, the names used wherein are borrowed from talk, Mr. *Hobbes* did wel to say that στιγμὴ precedaneously to that *indivisible* signification, which it afterwards had, did signifie a *visible mark*, made by a hot iron, or the like. And in this procedure, he did no more then any man would have done; who considers that all our knowledge proceeds from our senses; as also that words do, *primarily*, signifie things obvious to *sense*, and only *secondarily*, such as men call *incorporeal*. This leads me to a further consideration of this word. *Hesychius* (of whom it is said that he is *Legendus non tanquam Lexicographus, sed tanquam justus Author.*) Interprets στιγμὴ, νυγμὴ, which is a point of a greater or lesser size, made with any thing. So στίζω signifies to prick or marke with any thing in any manner, and hath no impropriated signification in it self, but according to the writer that useth it. Thus in a *Grammarian* στίζω signifies to *distinguish* by *pointing* often, sometimes, even in them, it is the same with ὀβελίζω, sometimes it signifies to set a mark, that something is wanting in that place, which marks were called στιγμαί. In maters of policy στίζω signifies to *disallow*, because they used to put a στιγμὴ (not στίγμα) before his name who was either disapproved, or to be mulcted. In punishments it signifies to *mark* or *brand*, whereof I cannot at present remember any other wayes then that of

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an *hot iron*, which is moſt uſual in Authors, becauſe moſt practiſed by the Antients. But that the marke which the *Turks* and others do imprint without burning may be ſaid στίζεσθαι, I do not doubt; no more then that *Herodian* did to give that term to the antient *Britaines*, of whom he ſayes, τὰ σώματα ἐστίζοντο γεγραϊς ποικίλαις, καὶ ζῶον παντοδαπῶν ἐκόσῳ. Thus Horſes that were branded with Κόππα and σαν (κοππάσαι and σαμφόραι) were ſaid στίζεσθαι. Thus in its originè στιγμὴ doth ſignifie a *brand or mark with an hot Iron*, or the like, and that muſt be the proper ſignification of στιγμὴ, which is proper to στίζω, none but ſuch as Dr. *Wallis* can doubt. In its *deſcendants* it is no leſs evident, for from στιγμὴ comes *Stigmoſus*, which ſignifies to be branded; *Vitellianâ cicatrice Stigmoſus* not *Stigmatoſus*. So *Pliny* in his Epiſtles, as Robert Stephen cites it. And στιγματίας (the Derivative of στιγμὴ, which ſignifies any mark, as well as a brand, even ſuch as remain after *ſtripes*, being black and blew) was a Nick-name impoſed upon the Grammarian *Nicanor*, ὅτι πολλοὺς στιγμοὺς ἐπολυλόγησε. And though we had not any examples of στιγμὴ being uſed in this ſenſe, yet from thence for any man to argue againſt it (but he who knows no more then *Stephen* tells him) is madneſs, unleſs he will deny that any word hath loſt its right ſignification, and is uſed only (by the Authors we have, although neither the *Dr.* nor I have read all them) in its analogical ſignification. I have alwayes been of opinion, that στιγμὴ ſignified a *ſingle point*, big or little, it matters not; and στίγμα, a *compoſure of many*; as γραμμὴ ſignifies a *line*, and γράμμα a *letter*, made of ſeveral lines. For στίγμα ſignified the *Owle*, the *Samana*, the *letter* K, yea *whole words*, *lines*, *Epigrams* engraven in mens faces; and στιγμὴ, I doubt not, had ſignified a *ſingle point*, had ſuch been uſed, and ſo it became tranſlatitiouſly uſed by *Grammarians* and *Mathematicians*. I could give grounds for this conjecture, and not be ſo impertinent as the Doctor in his *Sermon* (where he told men that σφὸς was not in *Homer*; that from ἔρευθος came *Ebrius*; that *Sobrietas* was not bad Latine, and that *Sobrius* was once (as I remember) in *Tully*. Is this to ſpeak ſuitably to the oracles of God, or rather to laſh out into idle words? Hath the Dr. any ground to think theſe are not impertinences? Or are we, poor mortals, accountable for ſuch *idle* words as fall from us in private diſcourſes, whileſt theſe Ambaſſadours of Heaven *droll* in the Pulpit without any danger of an after-reckoning?

But I proceed to a further ſurvey of the Doctors intolerable ignorance. His charge in the end of the *School-Maſters* Rent, is, that he ſhould *remember* στίγμαι & στιγμὴ *are not all one*. I complained before that he hath not cited *Robert Stephen* aright, now I muſt tell him he hath been negligent in the reading of *Henry Stephen*; for in him he might have found that στίγμα was ſometimes all one with στιγμὴ though there be no example in him wherein στιγμὴ is uſed for στίγμα. Hath not *Heſiod* (as *Stephen* rightly citeth it) in his *Scutum*.

Στίγματα δ' ὣς ἐπέφαντο ἰδεῖν δεινοῖσι δράκουσι Κυανέα κατὰ νῶτα ubi Scholiaſtes; ἄλλως δὲ στιγμαὶ ἦσαν ἐπάνω, τῶν φαλάγγων τῶν δεχόντων, κατάστικτοι γὰρ καὶ ποικίλοι οἱ ὄφεις. So *Johannes Diaconus* upon the place, a man, who (if I may uſe the Drs. phraſe) was *as good a critick*, *as* the Geometry Profeſſour.

Thus much for the *Doctor*. To the underſtanding *Reader*, I ſay, that στιγμὴ is uſed for burning with a hot iron; 2. *Macchab.* 9. 11. where ſpeaking of *Antiochus's* lamentable death, his body putrifying, and breeding worms, he is ſaid ὡς ὀδύνωντο τῷ ἀνθρώπῳ ἅλα μάστιγι, καὶ στιγμὴν ὀπτηνόμενοι τοῖς ἀλγηδόσι; *being pained as if he had been pricked, or burned with hot irons.* And that this is the meaning of that elegant writer, ſhall be made good againſt the Doctor, when he ſhall pleaſe to defend the vulgar Interpretation. *Pauſanias*, *in Boeoticis*, ſpeaking of *Epaminondas*, who had taken a town belonging to the *Sicyonians* called *Phabia* (Φυβία) wherein were many *Boetian* fugitives, who ought by Law to have been put to death, ſaith, he diſmiſſed them under other

other names, giving them onely a *brand* or *mark*. Πόλισμα ἐλεῶν Σκυθικῶν ἐφ βίαν, ἵνα ἦσαν τὸ πολὺ οἱ Βοιωτοὶ φυγάδες, στιγμὴν ἀφίνοντες τοῖς ἐγκαταληφθεῖσιν ἄλλην φρίνην ἢ τυχὸν κατείδε ἱστορεμένοις ἐκδοῦναι. It is true στιγμὴν is here put *adverbially*, but that doth not alter the case. Again *Zonaras*, in the third tome of his *History*, in the life of the Emperour *Theophilus*, saith, that when *Theophanes* and another *Monk* had reproved the said Emperour for demolishing images, he took and *stigmatised* each of them with twelve *Iambicks* in their faces. εἶτα κὴ τὰς ὄψεις αὐτῶν κατίσχε κὴ ταῖς στιγμαῖς μέλαν ἐπέχεε· γράμματα δὲ ἦν πᾶσι τὰ στίγματα, τὰ δὲ πᾶσι ἰαμβοι ἦσαν. A place so evident, that I know not what the Dr. can reply. This place is just parallel to what the same Author saith in the life of *Irene*, τὰς ὄψεις σφῶν κατισχὰς ἐν γράμμασι μέλανι ἐγχεομένου τοῖς στίγμασι. If the Dr. object that he is a moderne Author, he will never be able to render him as inconsiderable as *Adrianus Junius's Nomenclator*, *Thomasius* and *Rider*. If any will deny that he writes good Greek, *Hieronymus Wolfius* will tell them, his onely fault is, περισσολογία, *redundancy* in words, and not the use of *bad* ones.

Another example of στιγμὴ used in this sense, is in the Collections out of *Diodorus Siculus* lib. 34. as they are to be found at the end of his works, and as *Photius* hath transcribed them into his *Bibliotheca*. He saith that the Romans did buy multitudes of servants and employ them in *Sicily*; Οἷς ἐκ τῶν σωματοφυλακίων ἀγκλεῖν ἀπηχθήσαν, ἐνθὺς χαραχθῆναι ἐπέβαλλον, κὴ στιγμὰς τοῖς σώμασι. These are the words but of one Author, but ought to passe for the judgement of two, seeing *Photius*, by inserting them, hath made them his own.

Besides, it is the judgement of a great *Master* of the Greek tongue, that *stigmata non tam punctis ipsa quàm punctis variatam superficiem Græci vocaverunt*: I need not I suppose, name him, so great a Critick as the Dr. cannot be ignorant of him.

Not were στίγματα commonly, but upon extraordinary occasions, imprinted with an hot iron. The letters were first made by incision, then the blood *pressed*, and the place filled up with ink, the composition whereof is to be seen in *Aetius*. And thus they did use to *matriculate* Souldiers also in the hand. Thus did the Grecian Emperour in the precedent example of *Zonaras*. And if the Dr. would more, let him repair to *Vinetus's* Comment upon the fifteenth Epigram of *Ausonius*.

And now I conceive enough hath hath been said to vindicate Mr. *Hobbes*, and to shew the insufferable ignorance of the puny professor, and unlearned Critick. If any more shall be thought necessary, I shall take the paines to collect more examples and Authorities, though I confess I had rather spend time otherwise then in matter of so little moment. As for some other passages in his book, I am no competent judge of *Symbolick Stenography*. The Dr. (Sir Reverence) might have used a cleanlier expression then that of a *shitten piece*, when he censures Mr. *Hobbes's* Book.

Hitherto the letter. By which you may see *what came in to my (not square) cap to call* στιγμὴ *a mark with a hot iron, and that, they who told me* that, did no more tell me a lie then they told you a lie that said the same of στίγμα; and if στιγμὴ be not right as I use it now, then call these notes not στιγμὰς, but στίγματα I will not contend with you for a trifle. For howsoever you call them you are like to be known by them. Sir, the calling of a Divine hath justly taken from you some time that might have been imployed in Geometry. The study of Algebra hath taken from you another part, for Algebra and Geometry are not

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all one; and you have caſt away much time in practiſing and truſting to Symbolical writings, and for the Authors of Geometry you have read, you have not examined their demonſtrations to the bottom. Therefore you perhaps may be, but are not yet a Geometrician, much leſſe a good Divine. I would you had but ſo much Ethicks, as to be civil. But you are a notable Critick So fare you well, and conſider what honour you do either to the Univerſity where you are received for profeſſor, or to the Vniverſity from whence you came thither, by your Geometry; and what honour you do to Emanuel Colledge by your Divinity; and what honour you do to the degree of *Dr.* with the manner of your Language. And take the counſel which you publiſh out of your Encomiaſt his letter; think me no more worthy of your pains, you ſee how I have fouled your fingers.

FINIS.